# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 40: October 4 – October 10, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 8 laboratory-positive[3] influenza cases were reported in Missouri during Week 40.  Five of the reported cases were influenza A and 3 were influenza B.  Two cases were laboratory-confirmed to be influenza A (H3) by the Missouri State Public Health Laboratory (MSPHL).

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE.  The reported percentage of visits for ILI was 1.78% and 0.86% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season.  During Week 39, 56 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 56 P&I associated deaths in Missouri[5].

- No outbreaks of influenza or ILI were reported in Missouri during Week 40.  In addition, no ILI-associated school closures were reported in Missouri during Week 40.

- National influenza activity and surveillance information is prepared by the CDC.  The information including a weekly report (FLUVIEW) will be available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^o$F [$37.8^o$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later.  The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at*
http://on.mo.gov/1VQngjx . *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 40**

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**

- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,**
**Missouri, CDC Week 40 (October 4 – October 10, 2015)**

| Influenza Type | Week 40 | 2015-2016* Season-to-Date |
|---|---|---|
| Influenza A | 5 | 5 |
| Influenza B | 3 | 3 |
| Influenza Unknown Or Untyped | 0 | 0 |
| Total | 8 | 8 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,**
**Missouri, CDC Week 40 (October 4 – October 10, 2015)**

| Age Group | Week 40 Cases | Week 40 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 3 | 1 | 3 | 1 |
| 05-14 | 0 | 0 | 0 | 0 |
| 15-64 | 2 | 0 | 2 | 0 |
| 65+ | 3 | 0 | 3 | 0 |
| Total | 8 | 0 | 8 | 0 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 40 (October 4 – October 10, 2015)**
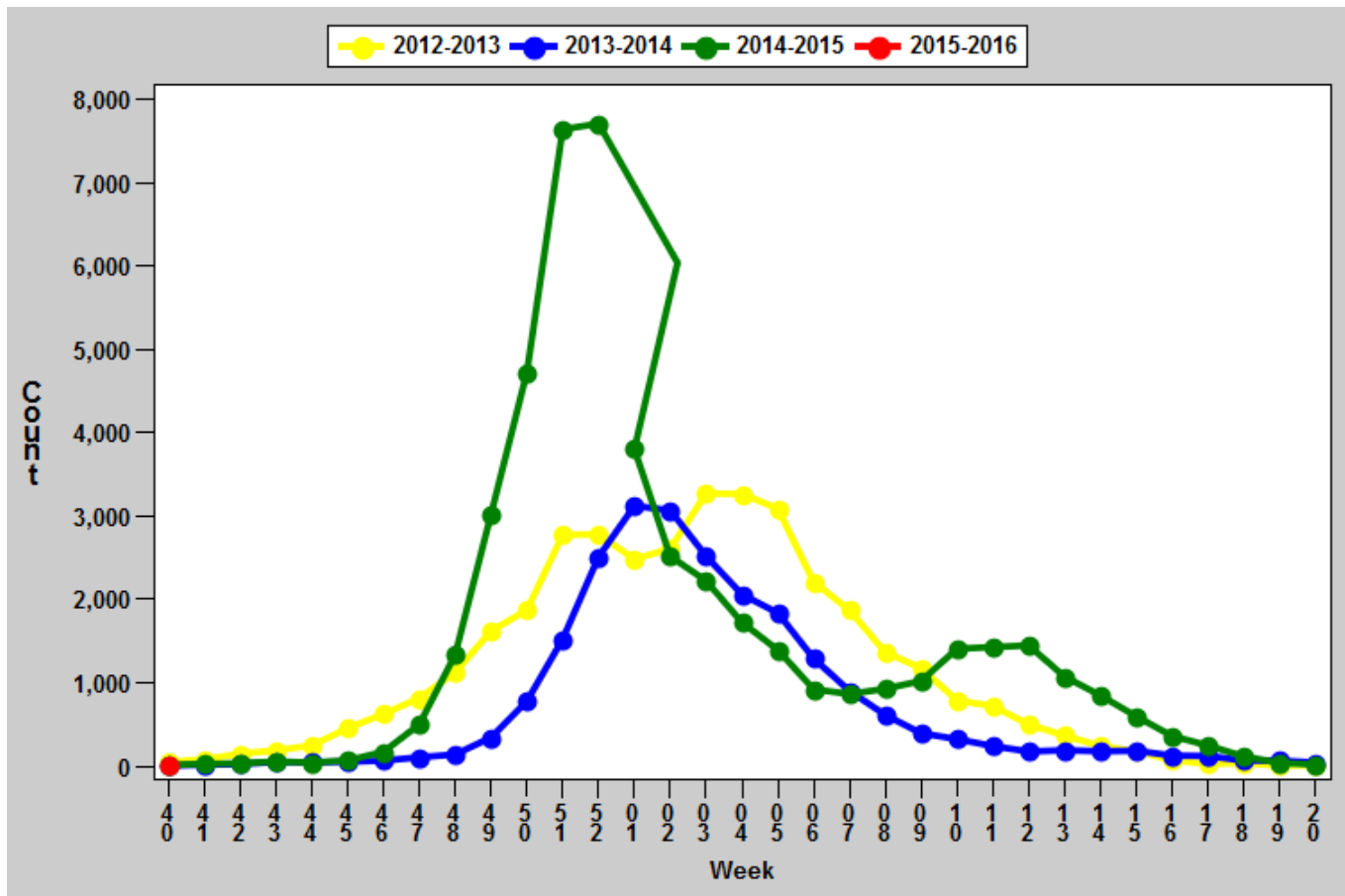
| District | Week 40 Cases | Week 40 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 1 | 0 | 1 | 0 |
| EA | 3 | 0 | 3 | 0 |
| NW | 3 | 0 | 3 | 0 |
| SE | 0 | 0 | 0 | 0 |
| SW | 1 | 0 | 1 | 0 |
| Total | 8 | 0 | 8 | 0 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
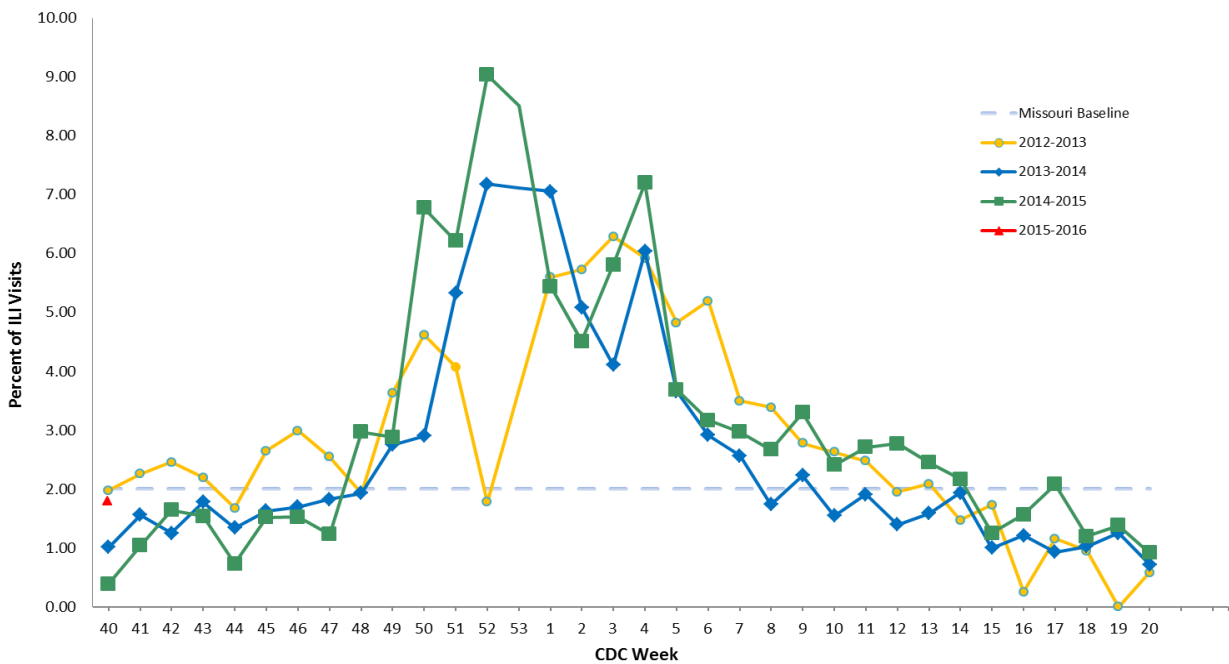[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
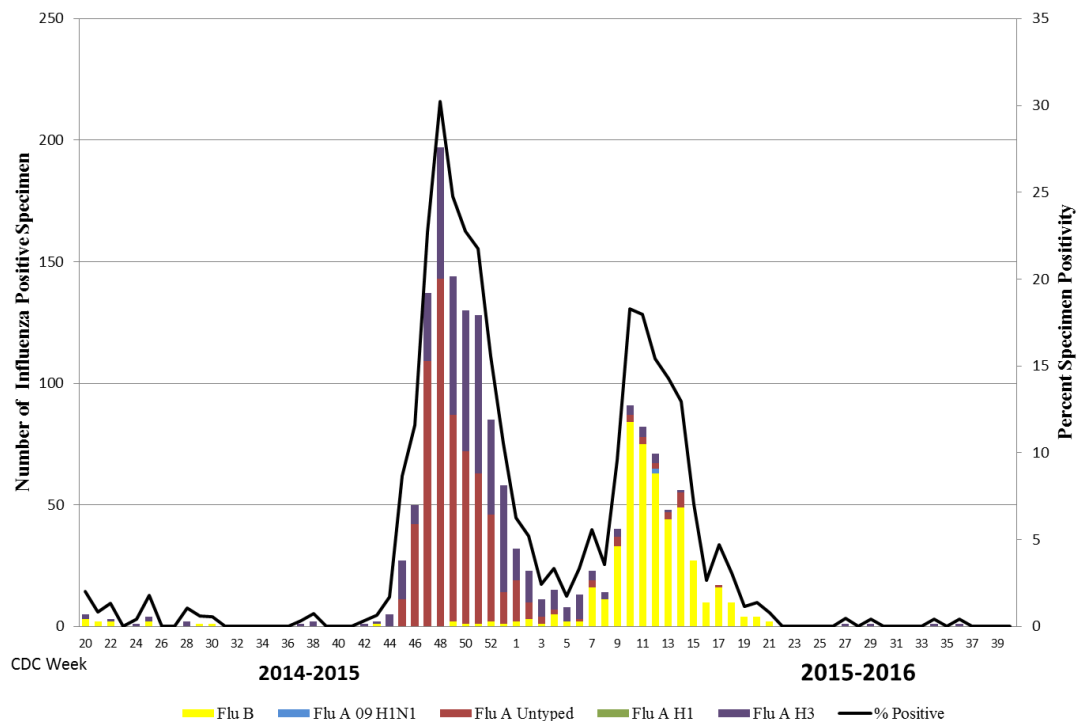*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

**Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**
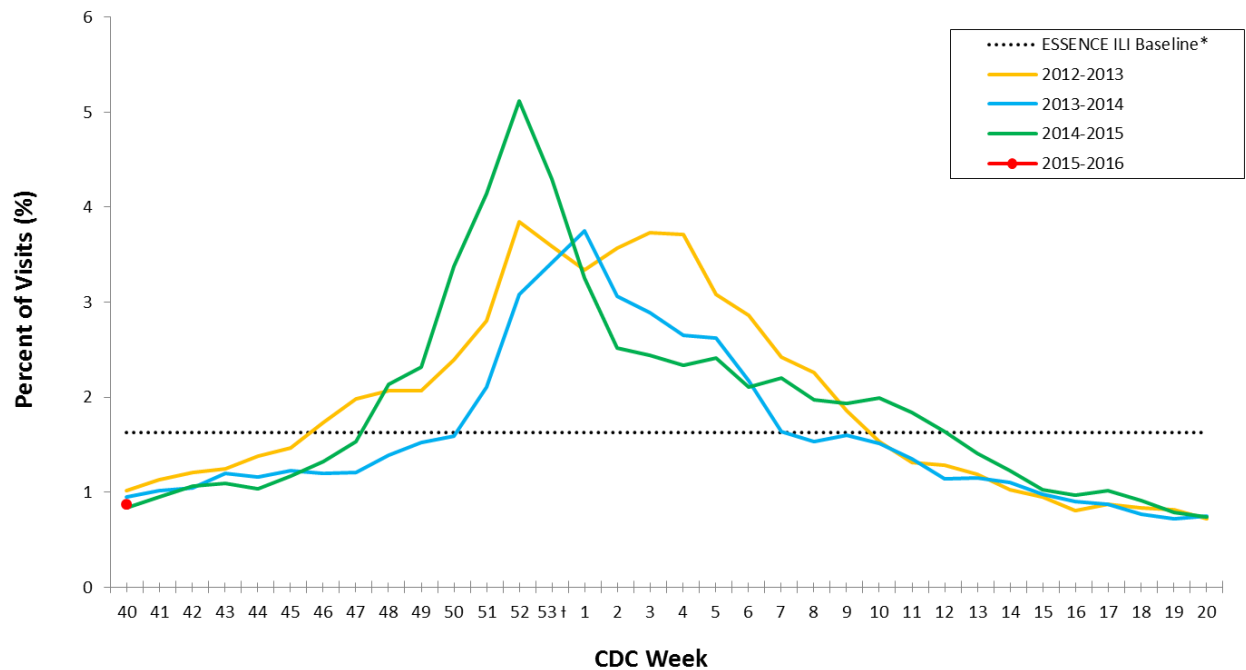


*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Percentage of Emergency Room Visits with Chief Complaint of Influenza-like Illness (ILI), ESSENCE Participating Hospitals in Missouri, 2012-2016**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 103 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.

†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Emergency Room Visits with Chief Complaint of Influenza-like Illness (ILI) from ESSENCE Participating Hospitals by Age Group, Missouri, CDC Week 40 (October 4 – October 10, 2015)**

| District | Age 0-4 | Age 5-17 | Age 18-44 | Age 45-64 | Age 65+ | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.04% | 2.35% | 0.91% | 0.46% | 0.14% | 0.99% |
| Central | 3.25% | 1.16% | 1.06% | 0.3% | 0.39% | 0.94% |
| Eastern | 1.45% | 0.78% | 0.29% | 0.29% | 0.18% | 0.43% |
| Southeast | 3.15% | 2% | 0.83% | 0.96% | 0.15% | 1.04% |
| Southwest | 5.83% | 4.01% | 0.86% | 0.72% | 0.26% | 1.57% |
| **Statewide** | **2.59%** | **1.91%** | **0.68%** | **0.44%** | **0.21%** | **0.86%** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. ESSENCE includes data from 103 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Emergency Room Visits with the Chief Complaint of Influenza-like Illness (ILI) for each District by CDC Week, ESSENCE Participating Hospitals in Missouri, 2015-2016***
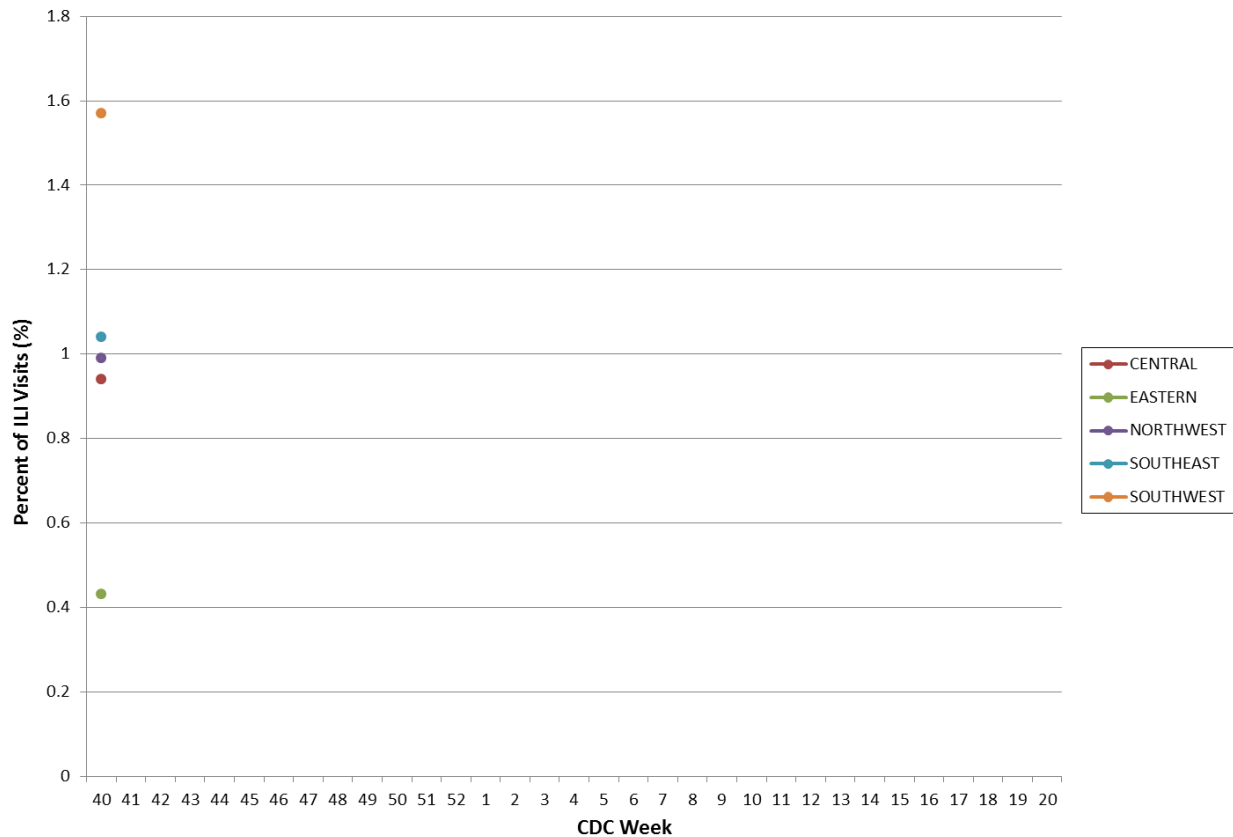


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. ESSENCE includes data from 103 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20).

**Graph 6. Number and Rate of Patients by Age Group Hospitalized with Influenza and/or Pneumonia Syndromes at Participating Missouri Hospitals, by CDC Week, 2015-2016\***
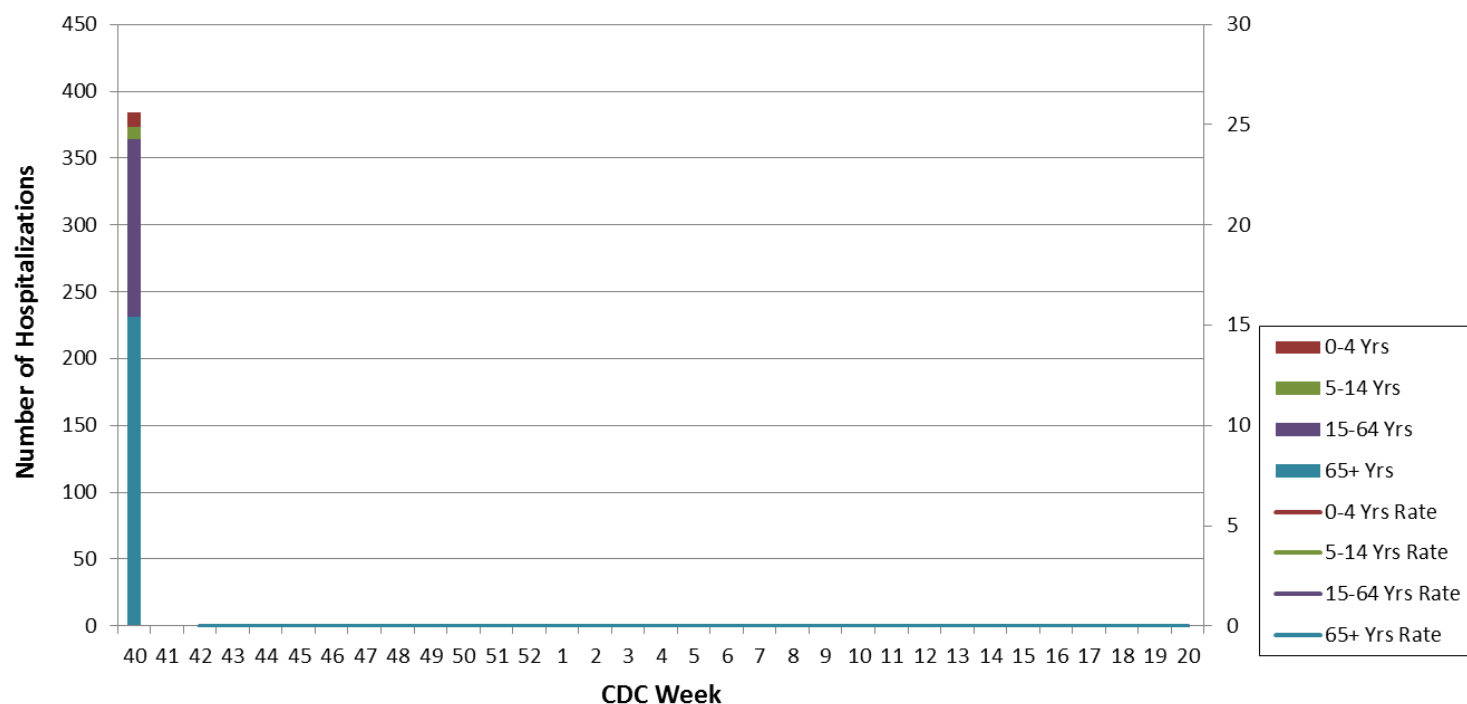


Data Source:  Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal.  Includes data from 103 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).  Population data from DHSS Population MICA 2013 (http://health.mo.gov/data/mica/mica/population.php).
\*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory:** http://slchlabtestguide.bjc.org/Default.aspx?url=9f91fbe7-fa21-4429-8f46-6d395db32696

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

# Week 41: October 11 – October 17, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 29 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 41. Fifty-five percent of reported-positive cases were influenza A. Five influenza cases (three influenza A and two influenza B) were reported during Week 41. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 41.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.27% and 0.98% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 40, 47 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 103 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures were reported in Missouri during Week 41.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1M4BkLa. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 41**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive† Influenza Cases by Influenza Type, Missouri, CDC Week 41 (October 11 – October 17, 2015)**

| Influenza Type | Week 40 | Week 41 | 2015-2016* Season-to-Date |
|---|---|---|---|
| Influenza A | 13 | 3 | 16 |
| Influenza B | 10 | 2 | 12 |
| Influenza Unknown Or Untyped | 1 | 0 | 1 |
| Total | 24 | 5 | 29 |

†Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive† Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 41 (October 11 – October 17, 2015)**

| Age Group | Week 41 Cases | Week 41 Rate‡ | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate‡ |
|---|---|---|---|---|
| 00-04 | 1 | 0 | 6 | 2 |
| 05-14 | 0 | 0 | 0 | 0 |
| 15-64 | 3 | 0 | 14 | 0 |
| 65+ | 1 | 0 | 9 | 1 |
| Total | 5 | 0 | 29 | 0 |

† Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
‡Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 41 (October 11 – October 17, 2015)**
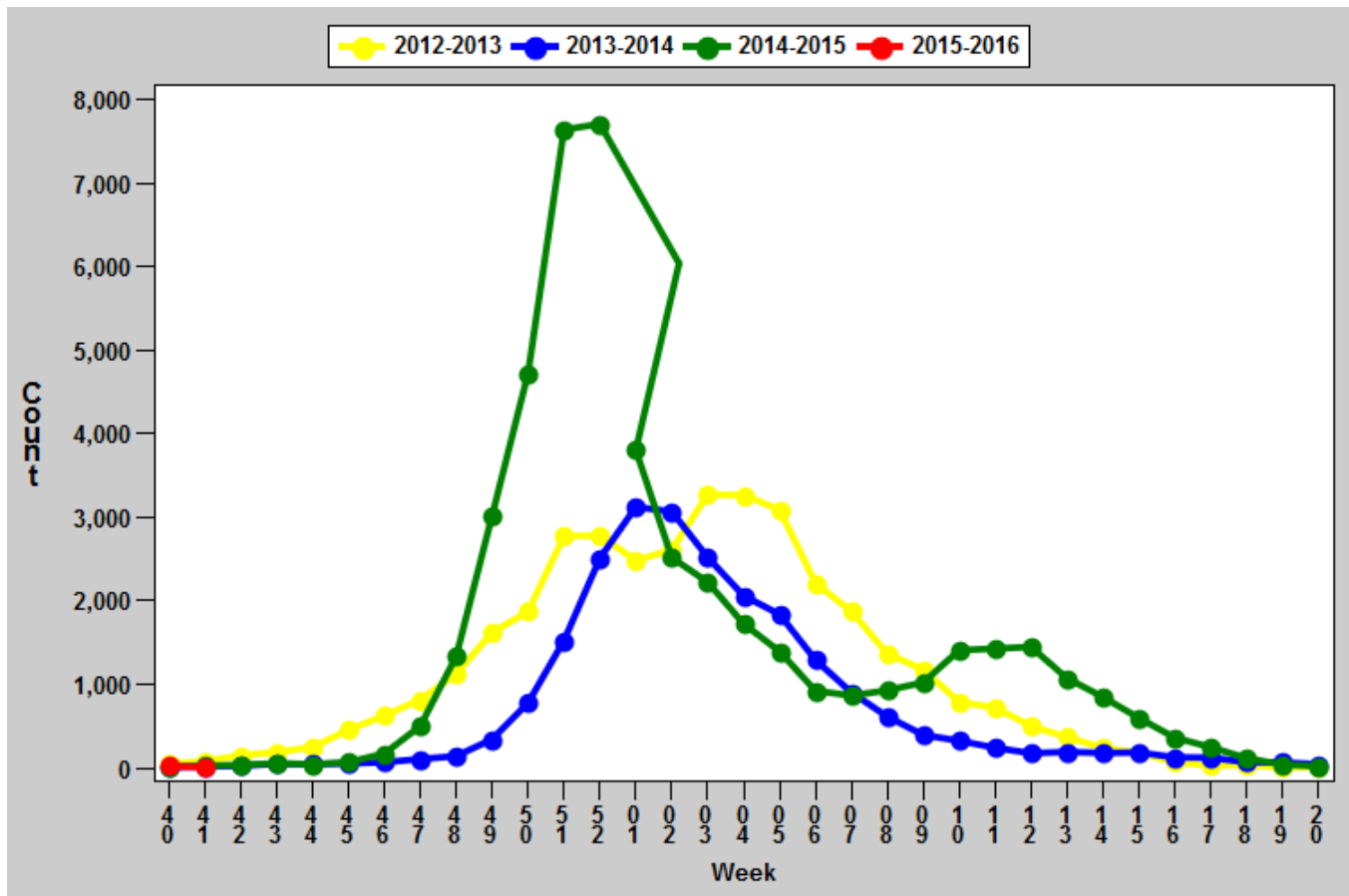
| District | Week 41 Cases | Week 41 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|----------|---------------|-----------------|---------------------------|-----------------------------------|
| CE | 2 | 0 | 4 | 1 |
| EA | 2 | 0 | 5 | 0 |
| NW | 0 | 0 | 15 | 1 |
| SE | 1 | 0 | 4 | 1 |
| SW | 0 | 0 | 1 | 0 |
| Total | 5 | 0 | 29 | 0 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
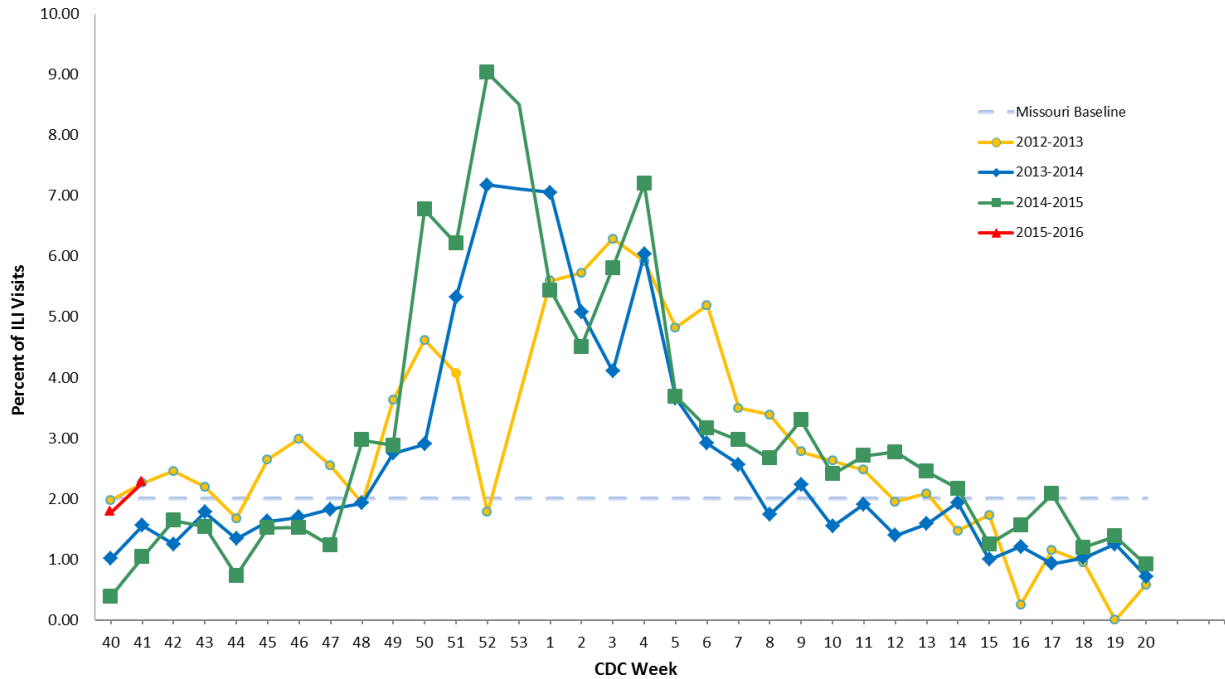[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
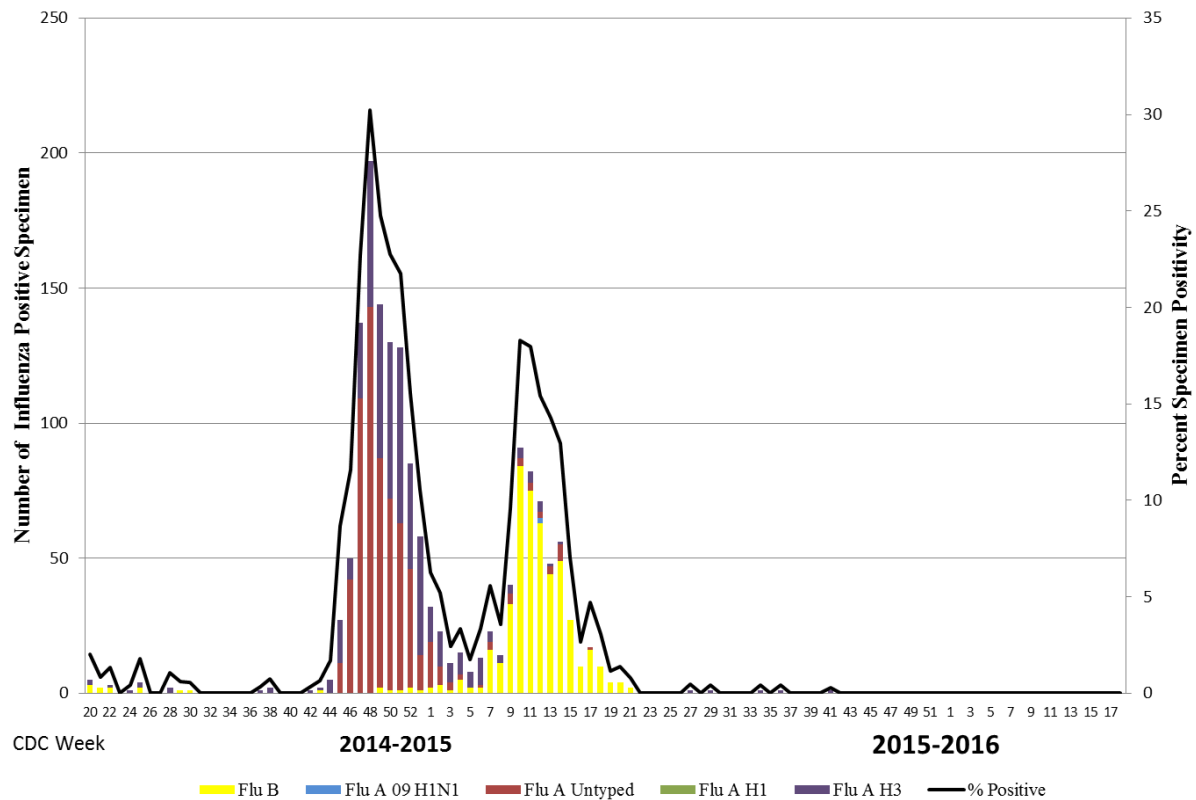*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

**Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**
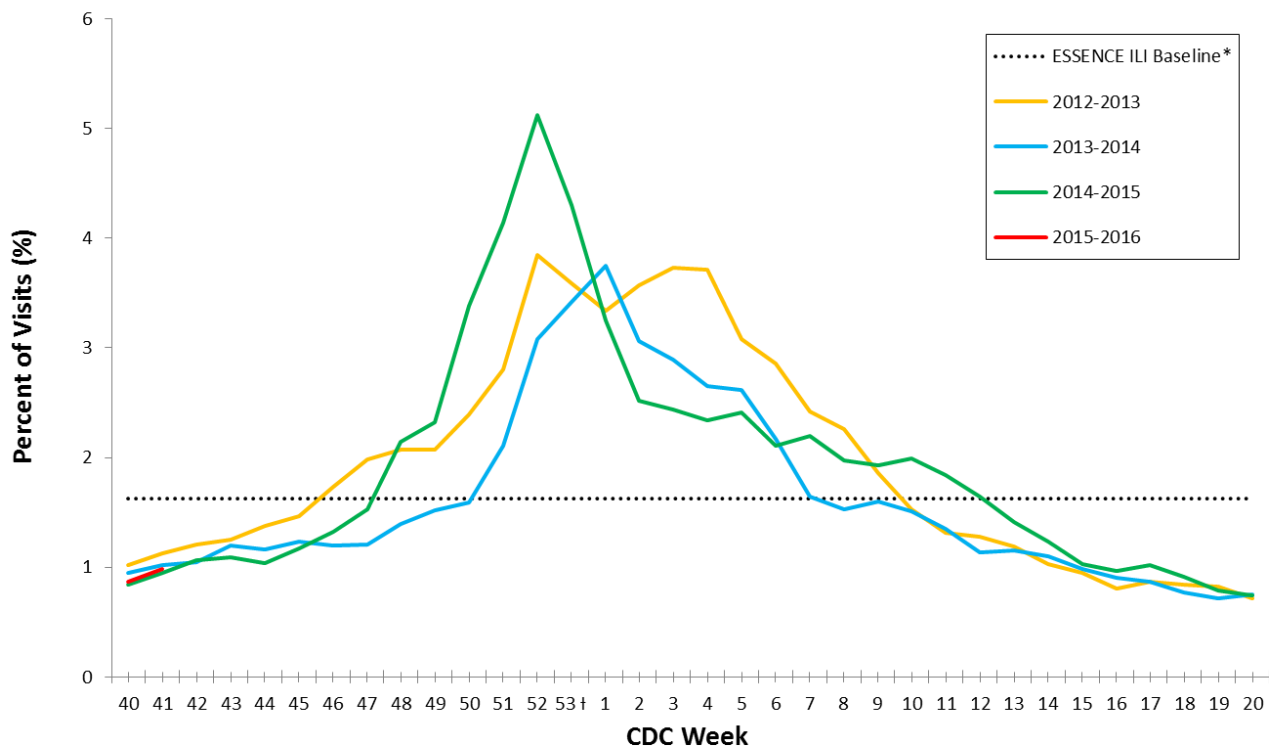


*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
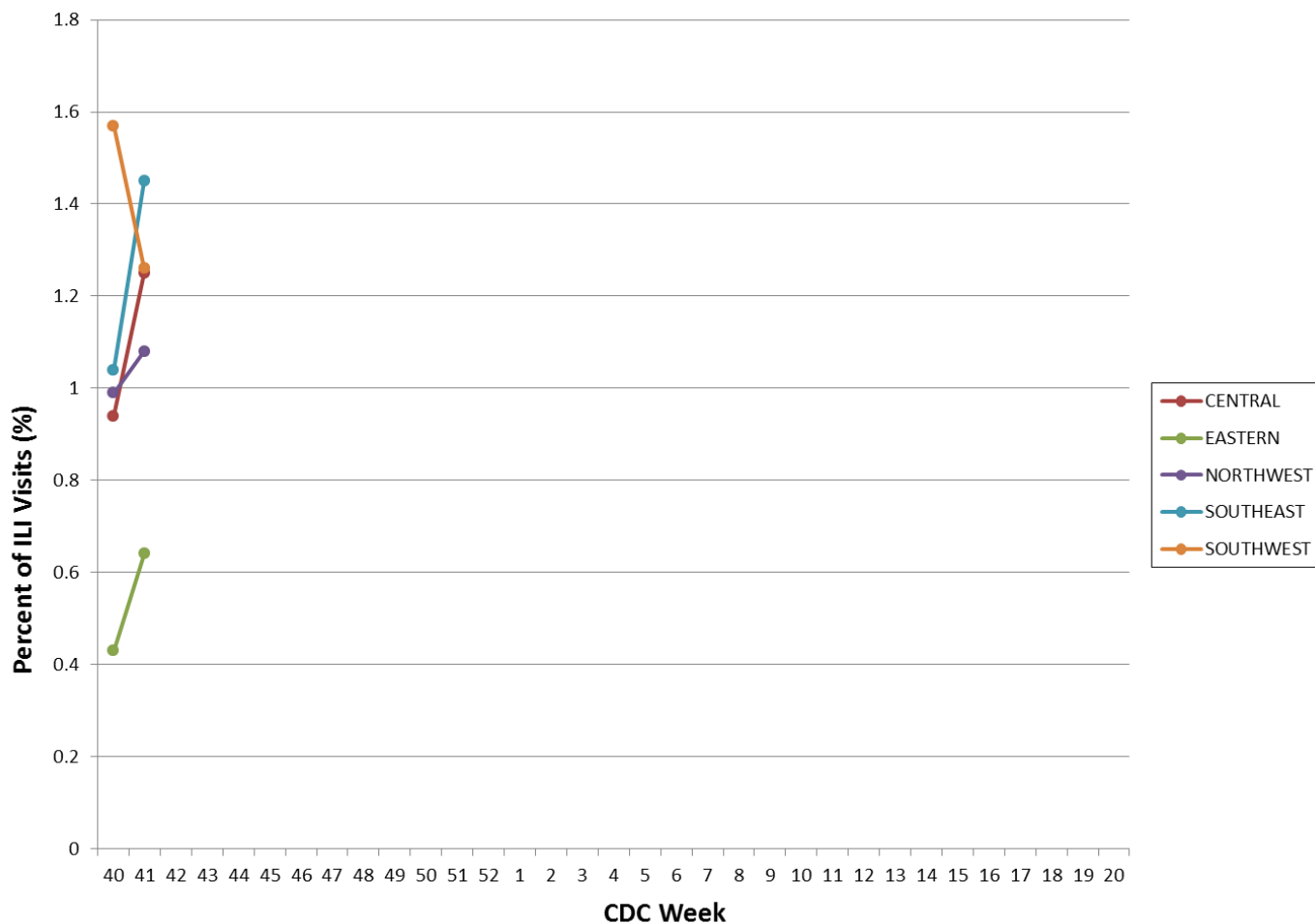
† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending October 17, 2015**

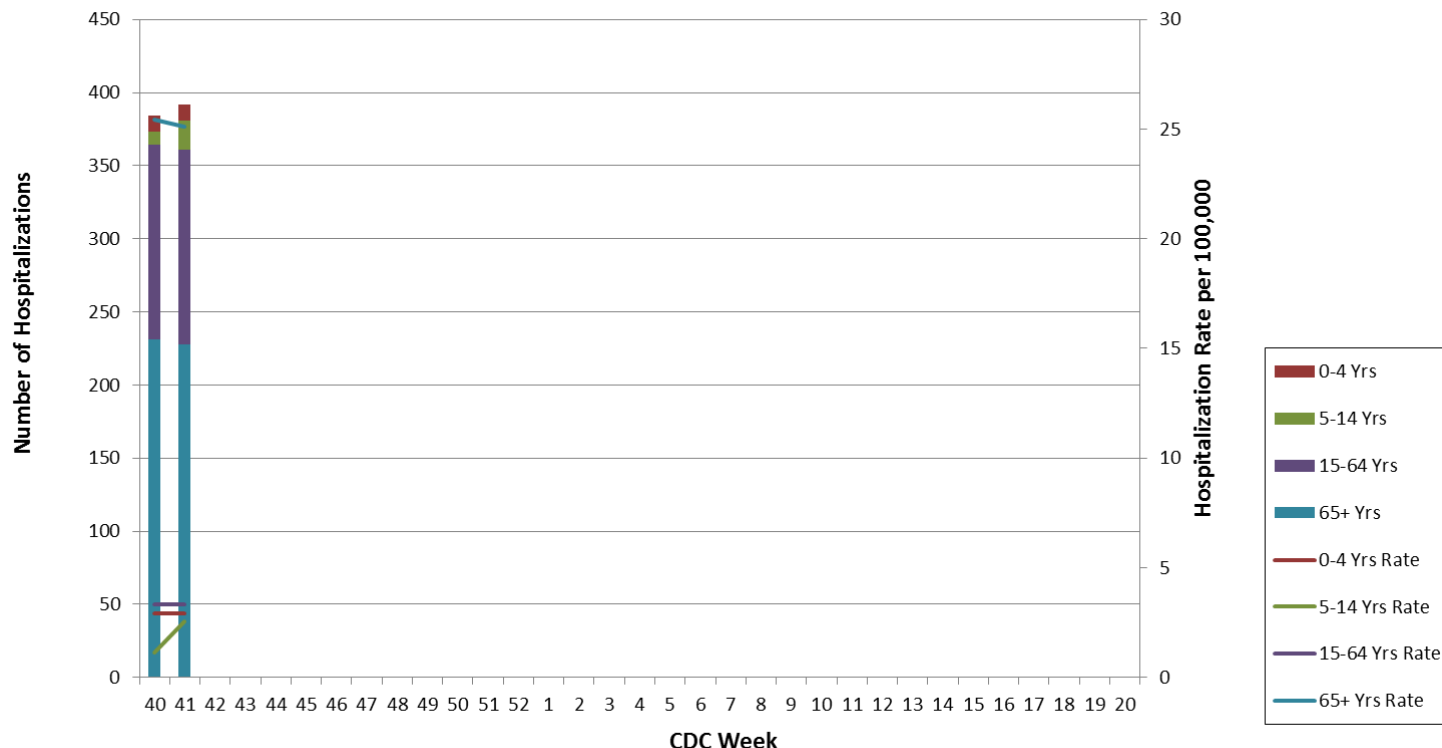| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.32 | 1.80 | 1.00 | 0.65 | 0.37 | 1.08 |
| Central | 1.66 | 1.04 | 1.95 | 0.69 | 0.20 | 1.25 |
| Eastern | 1.08 | 1.45 | 0.68 | 0.28 | 0.26 | 0.64 |
| Southeast | 4.53 | 3.09 | 1.58 | 0.51 | 0.28 | 1.45 |
| Southwest | 4.16 | 2.60 | 1.03 | 0.36 | 0.32 | 1.26 |
| **Statewide** | **2.22** | **1.82** | **1.03** | **0.45** | **0.29** | **0.98** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  ESSENCE includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending October 17, 2015**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. ESSENCE includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending October 17, 2015



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory:** http://slchlabtestguide.bjc.org/Default.aspx?url=9f91fbe7-fa21-4429-8f46-6d395db32696

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 42: October 18 – October 24, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 71 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 42. Ten influenza cases (seven influenza B and three influenza A) were reported during Week 42. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 42.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.90% and 1.05% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 41, 65 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 168 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures were reported in Missouri during Week 42.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1GGwEz5. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 42**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 42 (October 18 – October 24, 2015)**

| Influenza Type | Week 40 | Week 41 | Week 42 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 14 | 18 | 3 | 35 |
| Influenza B | 11 | 16 | 7 | 34 |
| Influenza Unknown Or Untyped | 1 | 1 | 0 | 2 |
| Total | 26 | 35 | 10 | 71 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 42 (October 18 – October 24, 2015)**

| Age Group | Week 42 Cases | Week 42 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 3 | 1 | 17 | 5 |
| 05-14 | 1 | 0 | 3 | 0 |
| 15-64 | 4 | 0 | 32 | 1 |
| 65+ | 2 | 0 | 19 | 2 |
| Total | 10 | 0 | 71 | 1 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 42 (October 18 – October 24, 2015)**
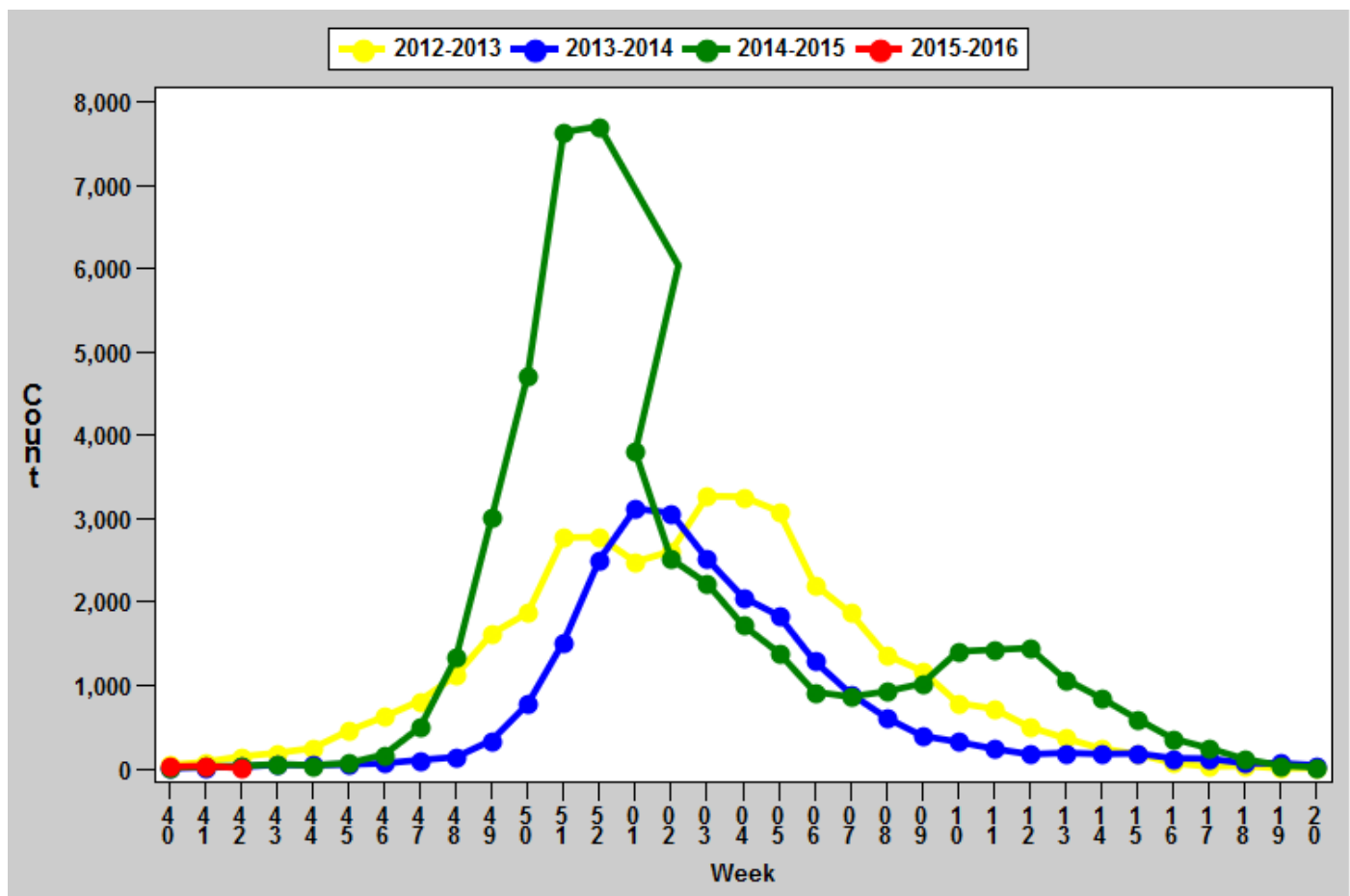
| District | Week 42 Cases | Week 42 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 0 | 0 | 15 | 2 |
| EA | 8 | 0 | 14 | 1 |
| NW | 2 | 0 | 22 | 1 |
| SE | 0 | 0 | 8 | 2 |
| SW | 0 | 0 | 12 | 1 |
| Total | 10 | 0 | 71 | 1 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
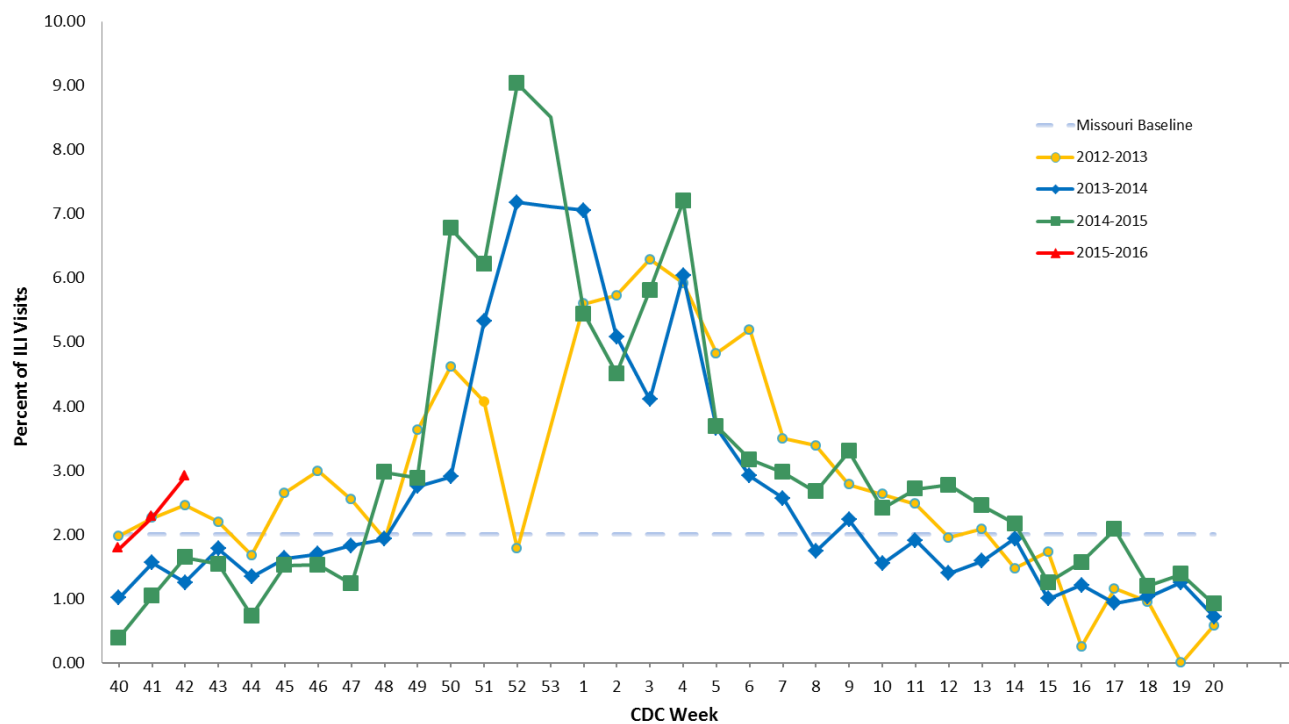[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
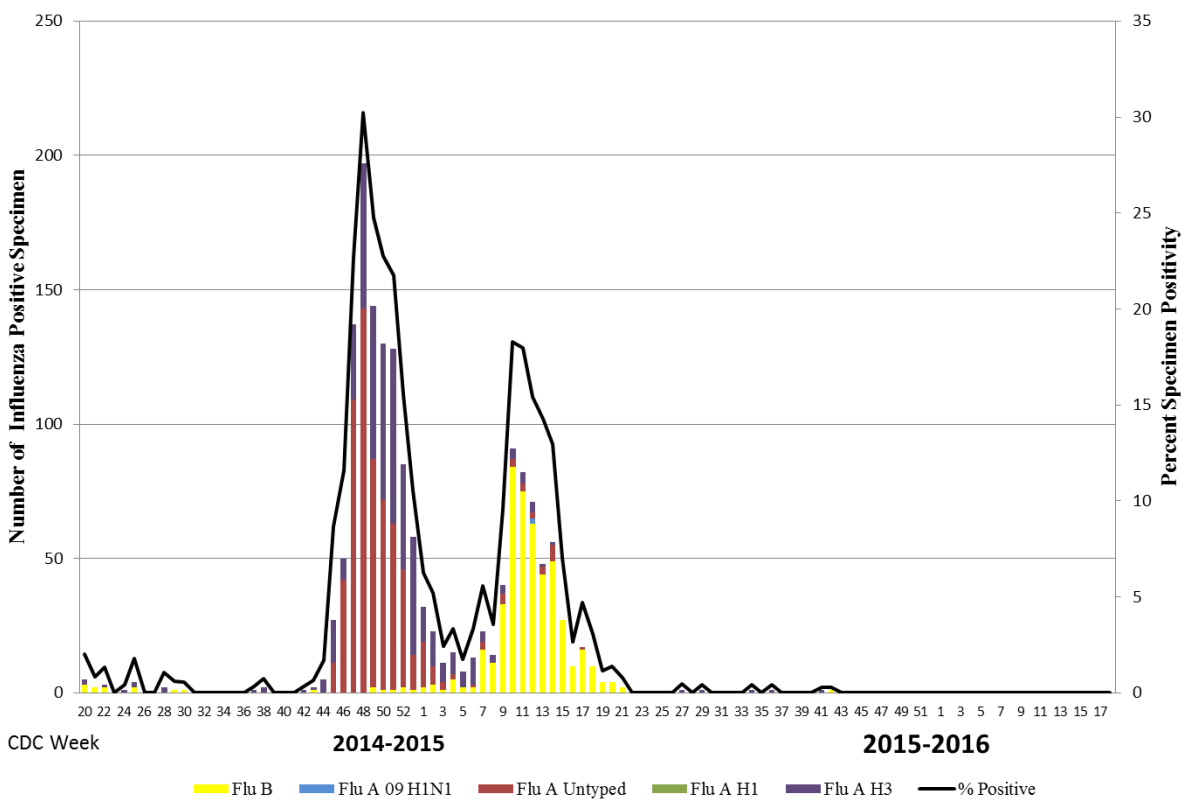*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests
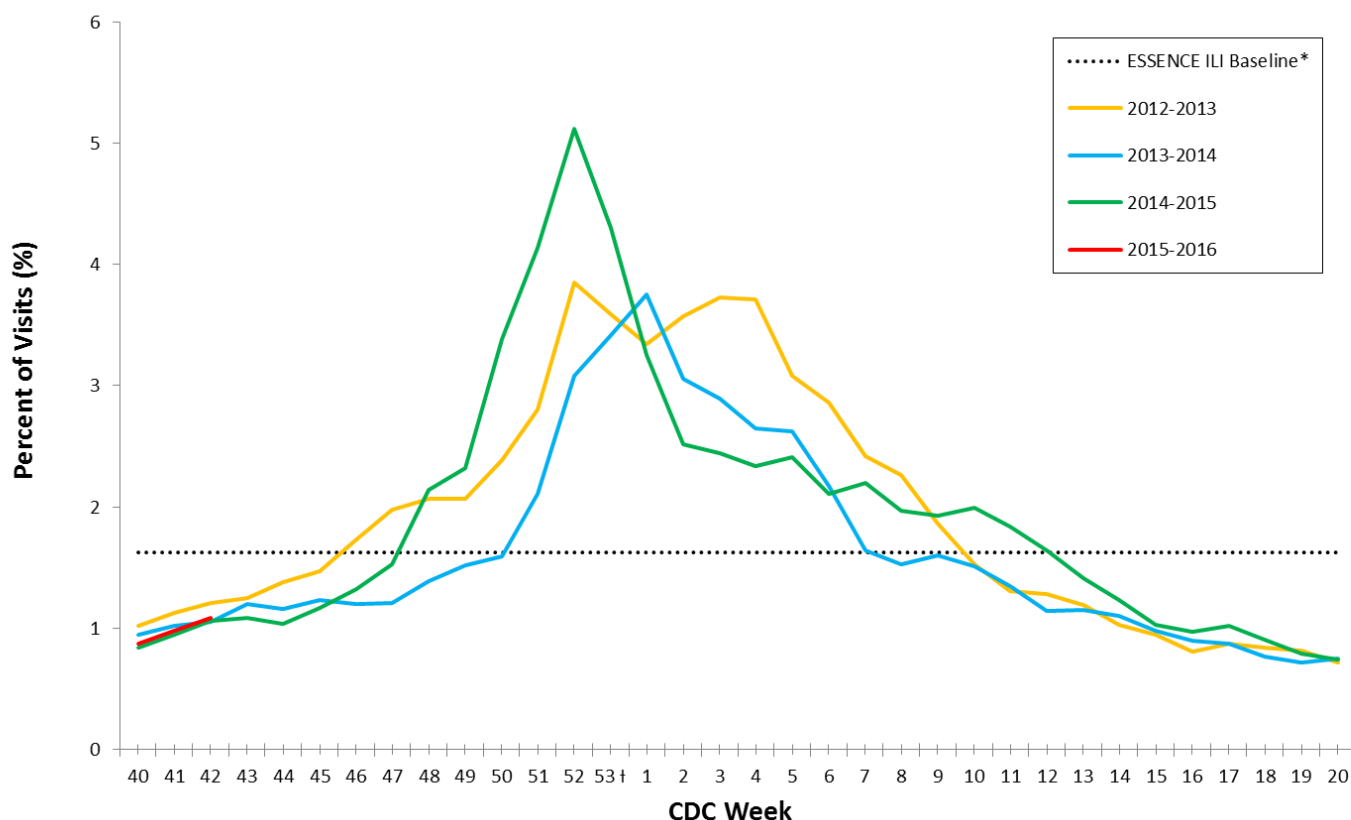


*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
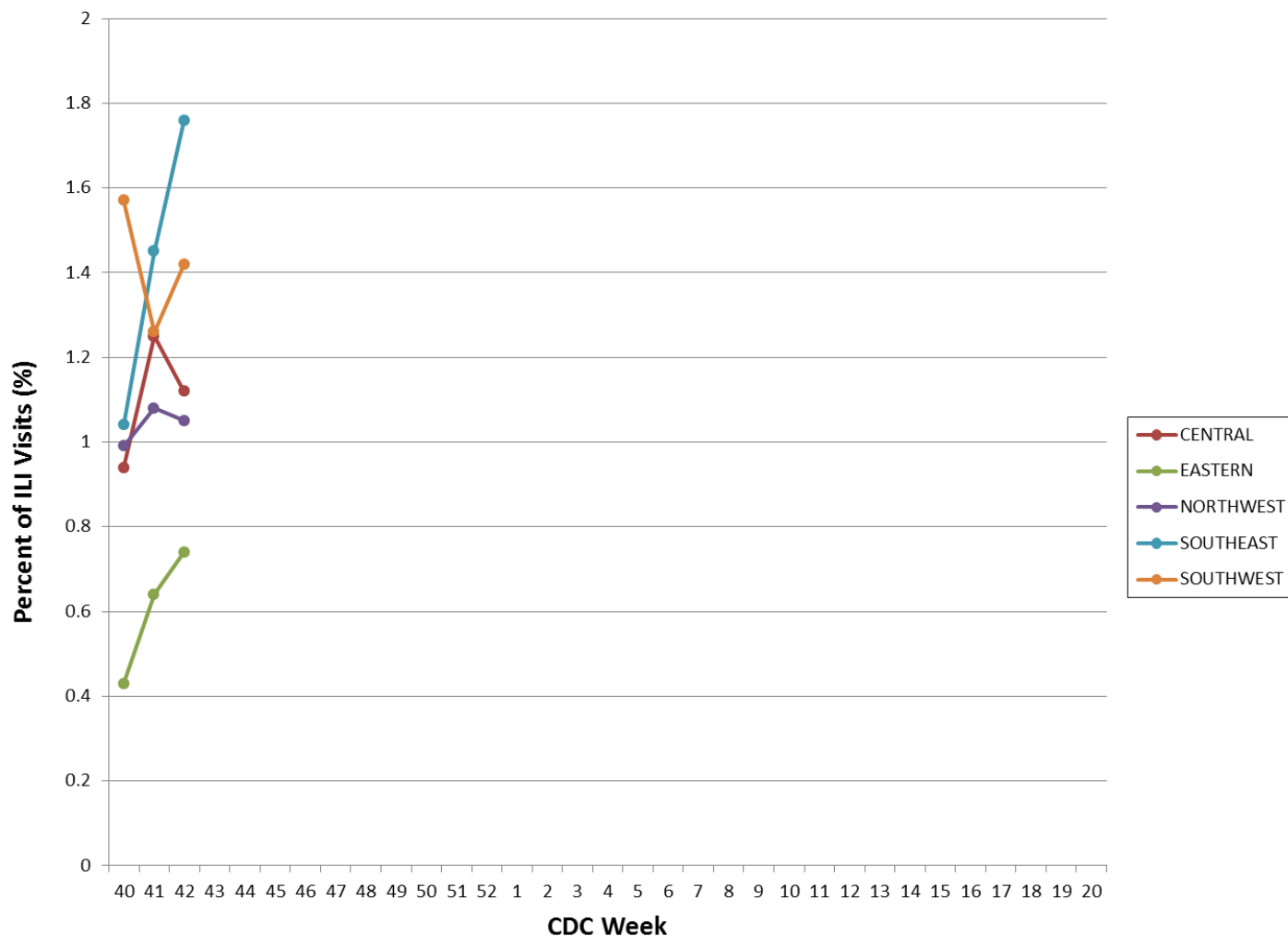† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending October 24, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.32 | 2.31 | 0.86 | 0.56 | 0.38 | 1.05 |
| Central | 4.34 | 1.64 | 1.16 | 0.65 | 0.09 | 1.12 |
| Eastern | 1.54 | 1.27 | 0.8 | 0.42 | 0.29 | 0.74 |
| Southeast | 8.21 | 4.1 | 1.01 | 0.67 | 0.42 | 1.76 |
| Southwest | 5.42 | 3.92 | 0.81 | 0.29 | 0.42 | 1.42 |
| **Statewide** | **3.06** | **2.26** | **0.87** | **0.48** | **0.32** | **1.05** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. ESSENCE includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending October 24, 2015
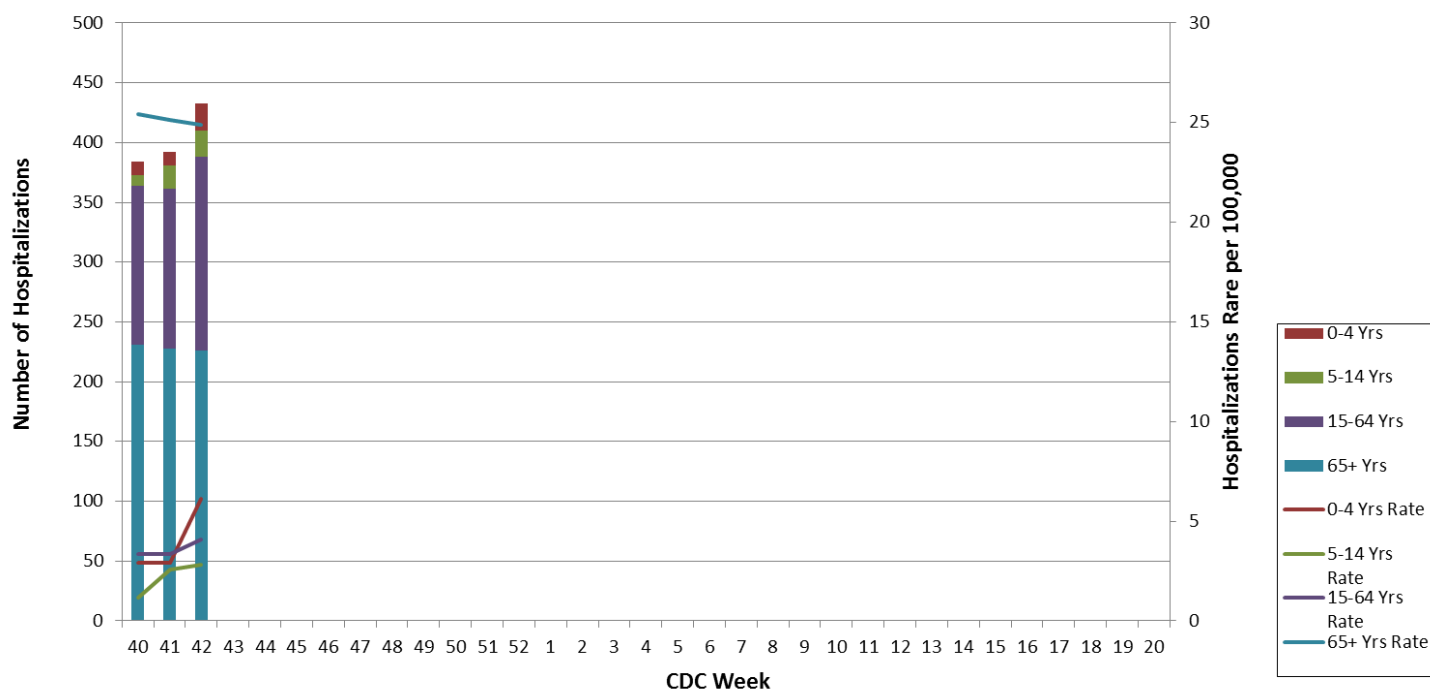


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. ESSENCE includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending October 24, 2015**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory:** http://slchlabtestguide.bjc.org/Default.aspx?url=92557084-4e66-4faa-b976-afd50a759053

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 43: October 25 – October 31, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 124 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 43. The influenza type for reported cases season-to-date includes 50% influenza A and 50% influenza B. Fifteen laboratory-positive[3] influenza cases (nine influenza B and six influenza A) were reported during Week 43. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 43.

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 1.11% and 0.93% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 42, 64 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 232 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures were reported in Missouri during Week 43.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1KW40W2. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 43**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 43 (October 25 – October 31, 2015)**

| Influenza Type | Week 41 | Week 42 | Week 43 | 2015-2016[*] Season-to-Date |
|---|---|---|---|---|
| Influenza A | 20 | 21 | 6 | 61 |
| Influenza B | 18 | 22 | 9 | 60 |
| Influenza Unknown Or Untyped | 1 | 1 | 0 | 3 |
| Total | 39 | 44 | 15 | 124 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 43 (October 25 – October 31, 2015)**

| Age Group | Week 43 Cases | Week 43 Rate[‡] | 2015-2016[*] Season-to-Date | 2015-2016[*] Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 5 | 1 | 29 | 8 |
| 05-14 | 5 | 1 | 17 | 2 |
| 15-64 | 4 | 0 | 54 | 1 |
| 65+ | 1 | 0 | 24 | 3 |
| Total | 15 | 0 | 124 | 2 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 43 (October 25 – October 31, 2015)**
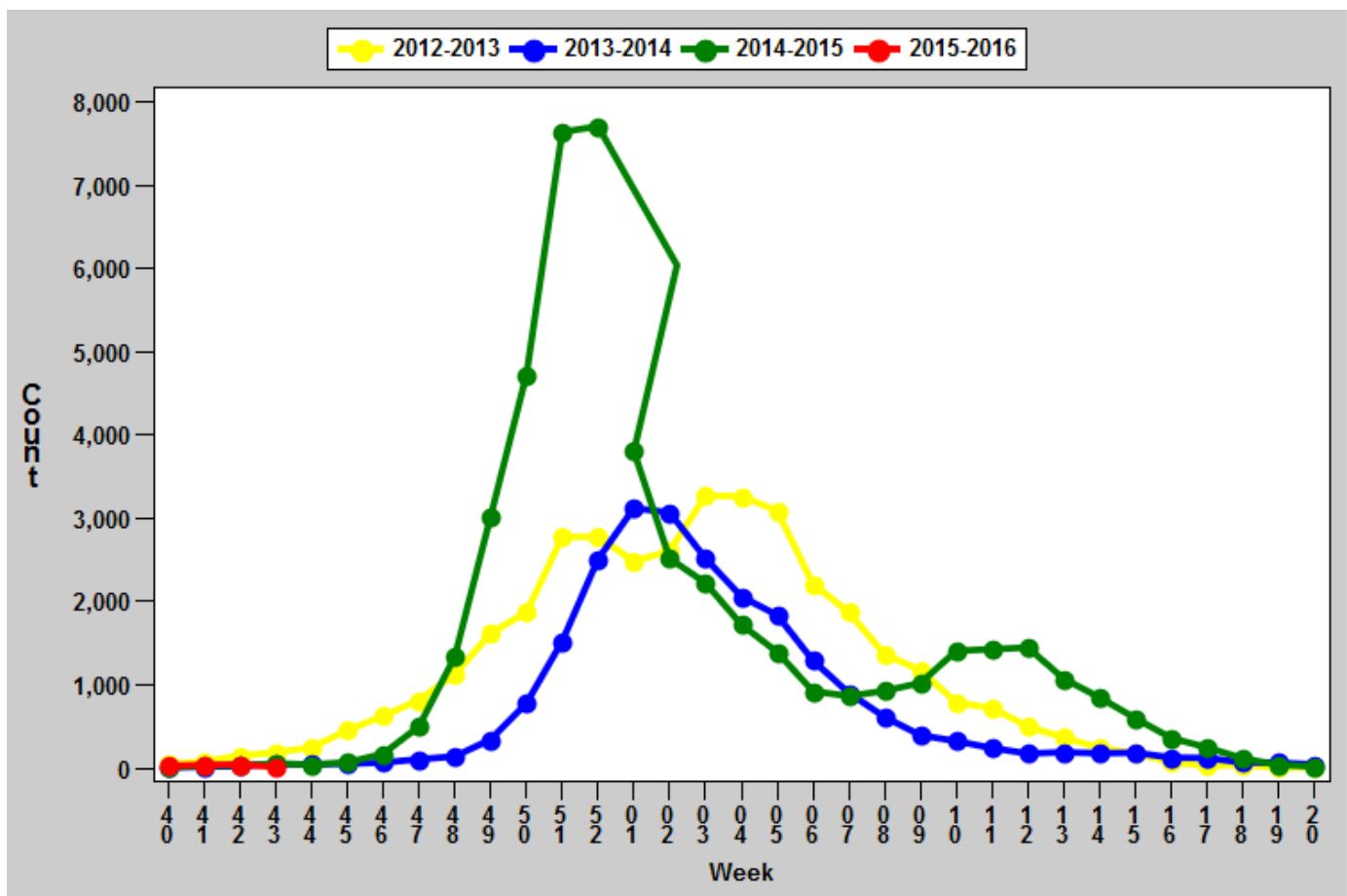
| District | Week 43 Cases | Week 43 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 4 | 1 | 36 | 5 |
| EA | 7 | 0 | 28 | 1 |
| NW | 1 | 0 | 30 | 2 |
| SE | 2 | 0 | 11 | 2 |
| SW | 1 | 0 | 19 | 2 |
| Total | 15 | 0 | 124 | 2 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
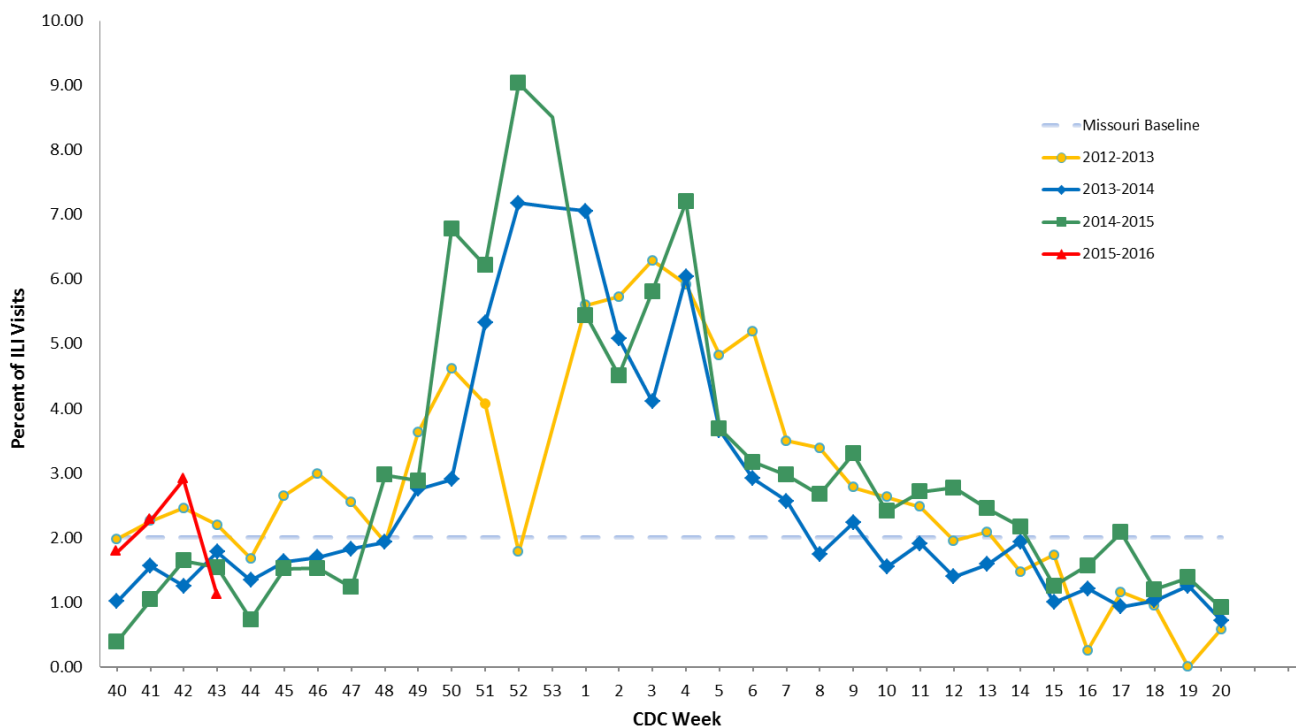[‡] Incidence Rate per 100,000 population

**Graph 1.  Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
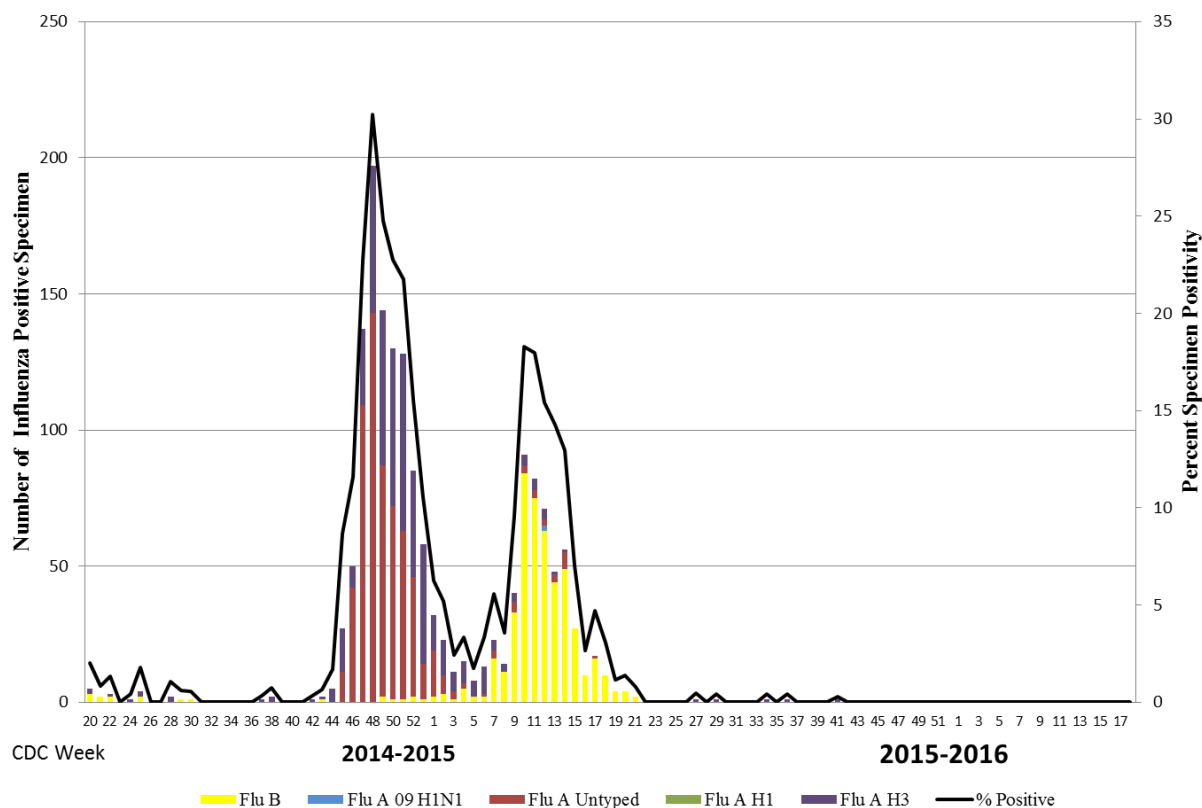*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests
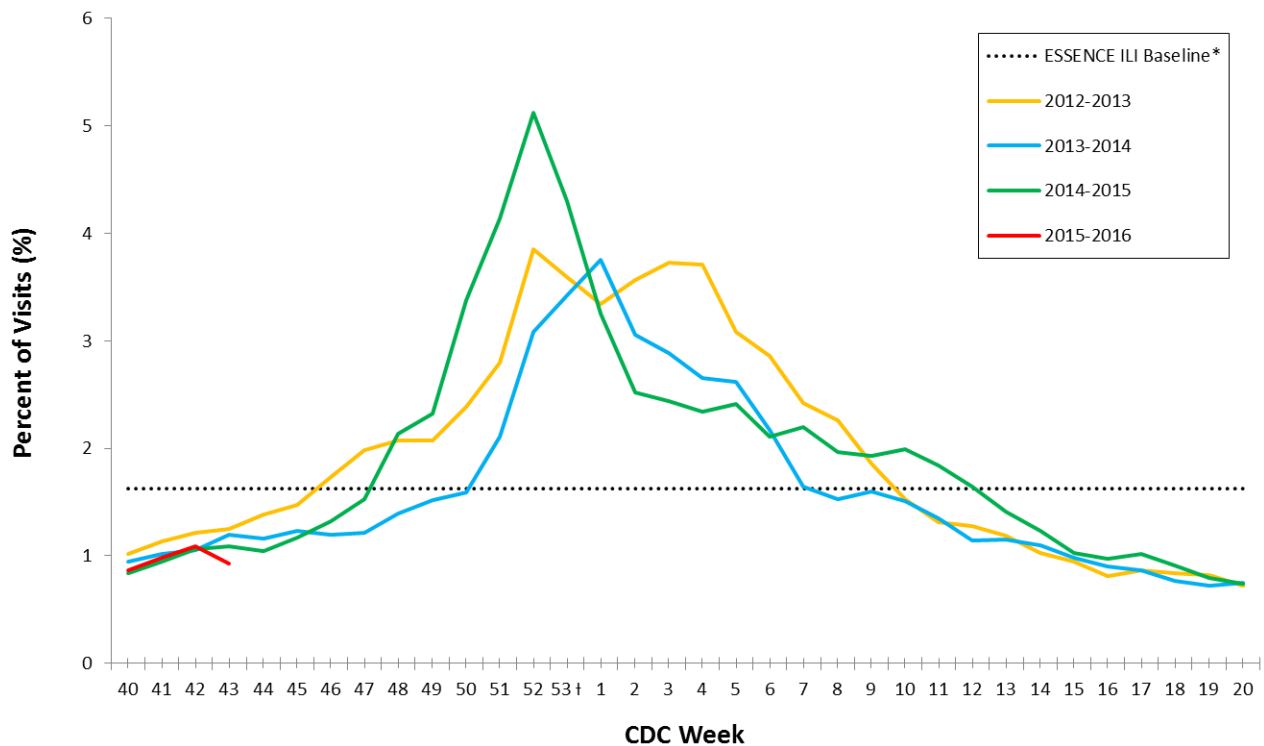


*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
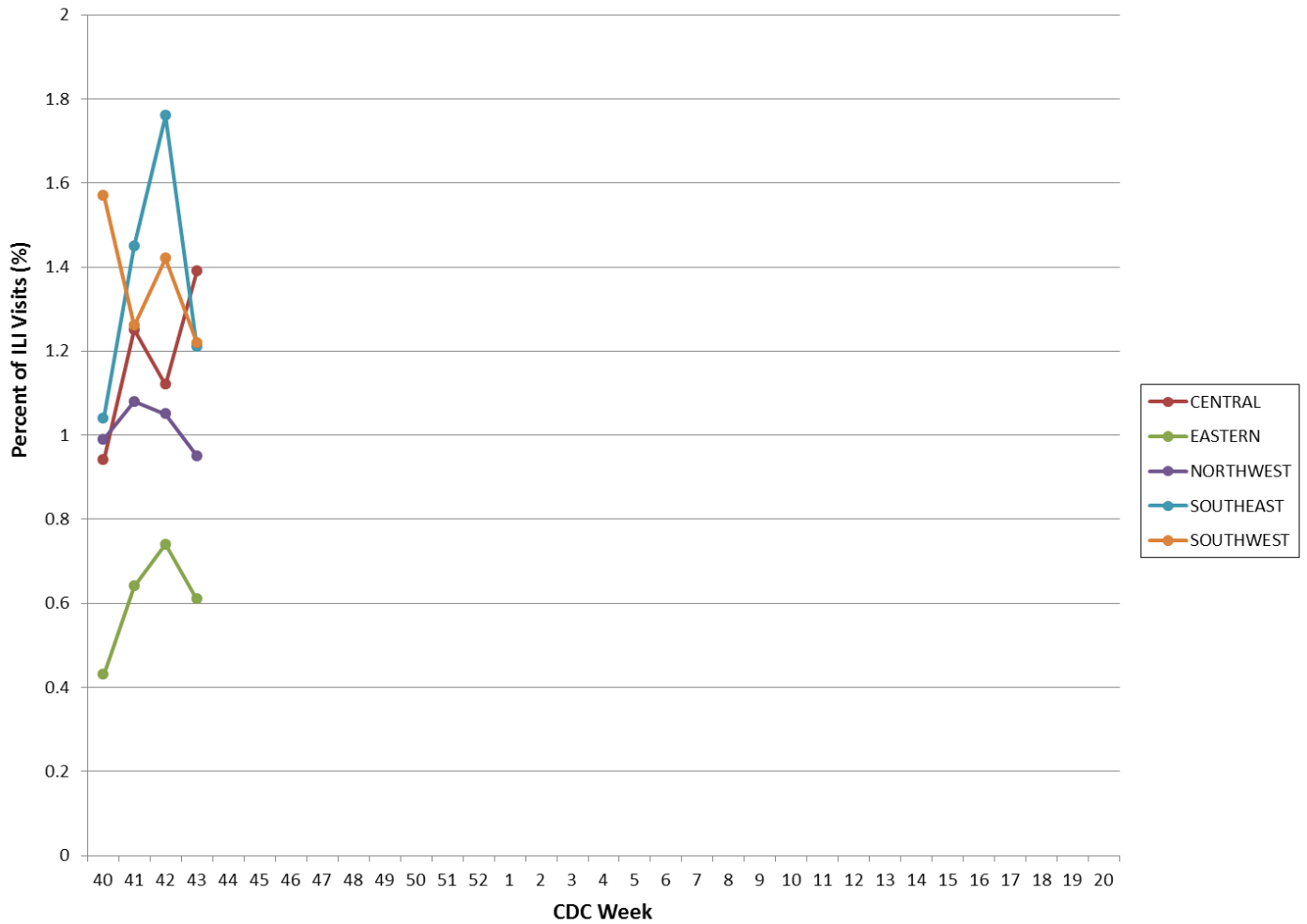
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending October 31, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.83 | 1.21 | 0.99 | 0.76 | 0.29 | 0.95 |
| Central | 3.95 | 2.80 | 1.13 | 0.73 | 0.80 | 1.39 |
| Eastern | 1.18 | 1.24 | 0.65 | 0.50 | 0.08 | 0.61 |
| Southeast | 5.17 | 3.01 | 1.04 | 0.3 | 0.15 | 1.21 |
| Southwest | 4.14 | 3.01 | 0.91 | 0.43 | 0.20 | 1.22 |
| **Statewide** | **2.36** | **1.83** | **0.87** | **0.57** | **0.24** | **0.93** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending October 31, 2015**
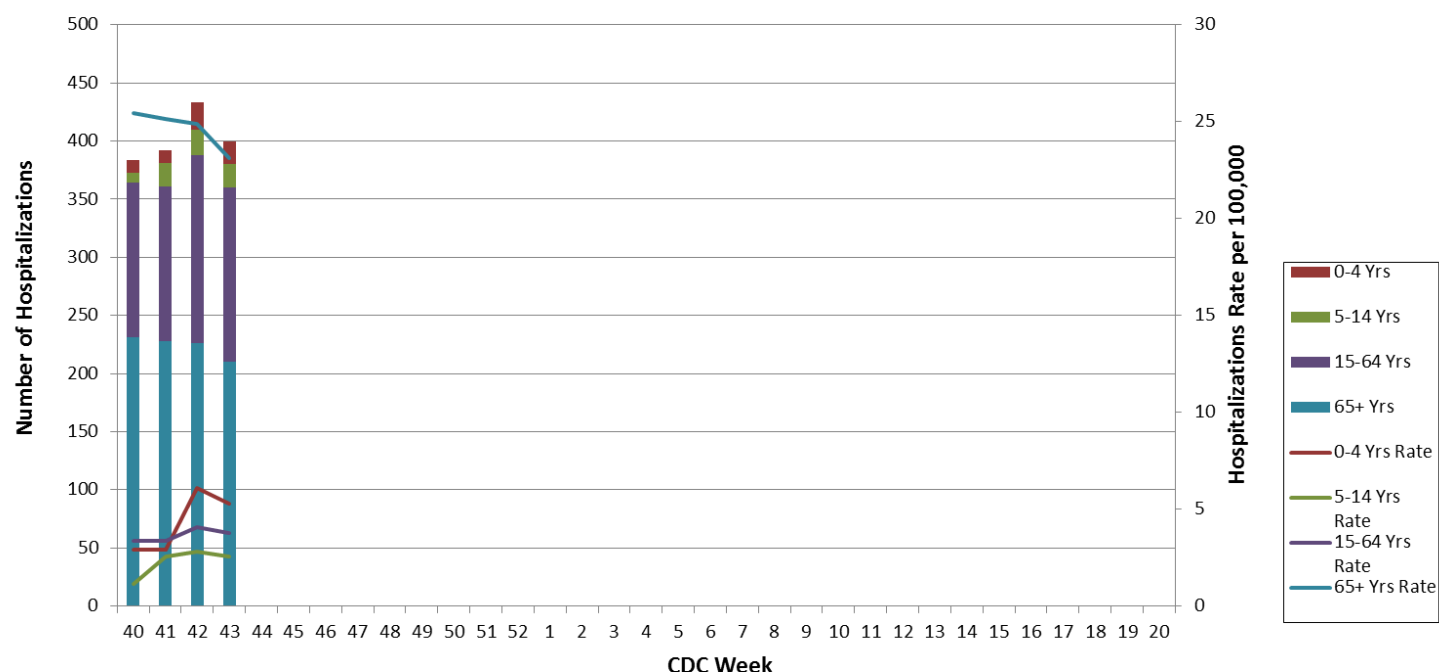


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending October 31, 2015



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).


# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=e13ba21a-4ed0-4655-a69d-538f8ef25b79**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 44: November 1 – November 7, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 175 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 44. The influenza type for reported cases season-to-date includes 50% influenza B, 47% influenza A, and 3% untyped. Thirteen laboratory-positive[3] influenza cases (six influenza B, five influenza A, and 2 untyped) were reported during Week 44. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 44.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.14% and 1.01% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 43, 60 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 292 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures were reported in Missouri during Week 44.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/20Kk4FY. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 44**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 44 (November 1 – November 7, 2015)**

| Influenza Type | Week 42 | Week 43 | Week 44 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 22 | 20 | 5 | 82 |
| Influenza B | 24 | 22 | 6 | 87 |
| Influenza Unknown Or Untyped | 1 | 1 | 2 | 6 |
| Total | 47 | 43 | 13 | 175 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 44 (November 1 – November 7, 2015)**

| Age Group | Week 44 Cases | Week 44 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 6 | 2 | 43 | 11 |
| 05-14 | 2 | 0 | 26 | 3 |
| 15-64 | 2 | 0 | 70 | 2 |
| 65+ | 3 | 0 | 36 | 4 |
| Total | 13 | 0 | 175 | 3 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 44 (November 1 – November 7, 2015)**
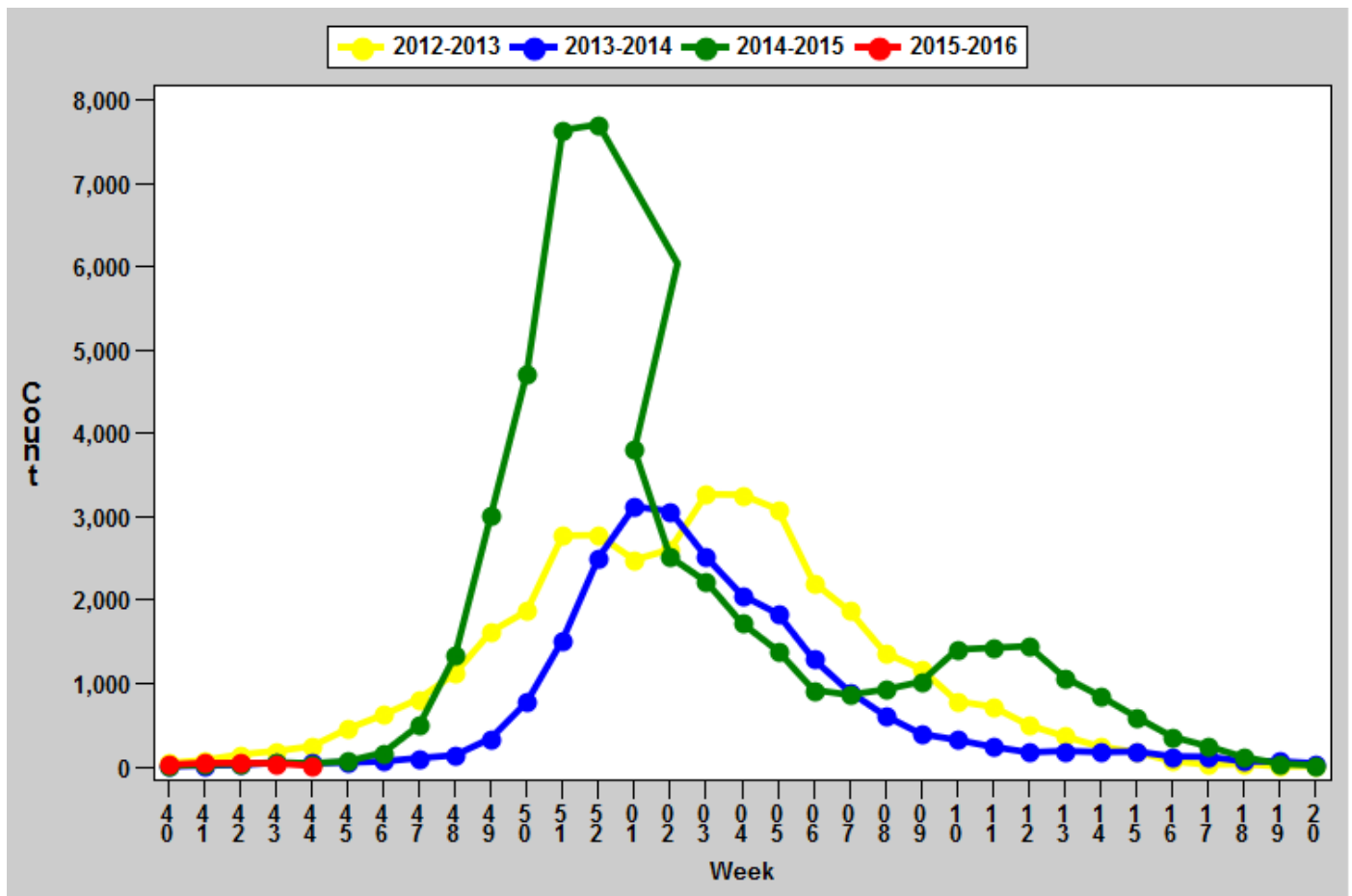
| District | Week 44 Cases | Week 44 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 1 | 0 | 45 | 7 |
| EA | 7 | 0 | 35 | 2 |
| NW | 5 | 0 | 54 | 3 |
| SE | 0 | 0 | 13 | 3 |
| SW | 0 | 0 | 28 | 3 |
| Total | 13 | 0 | 175 | 3 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
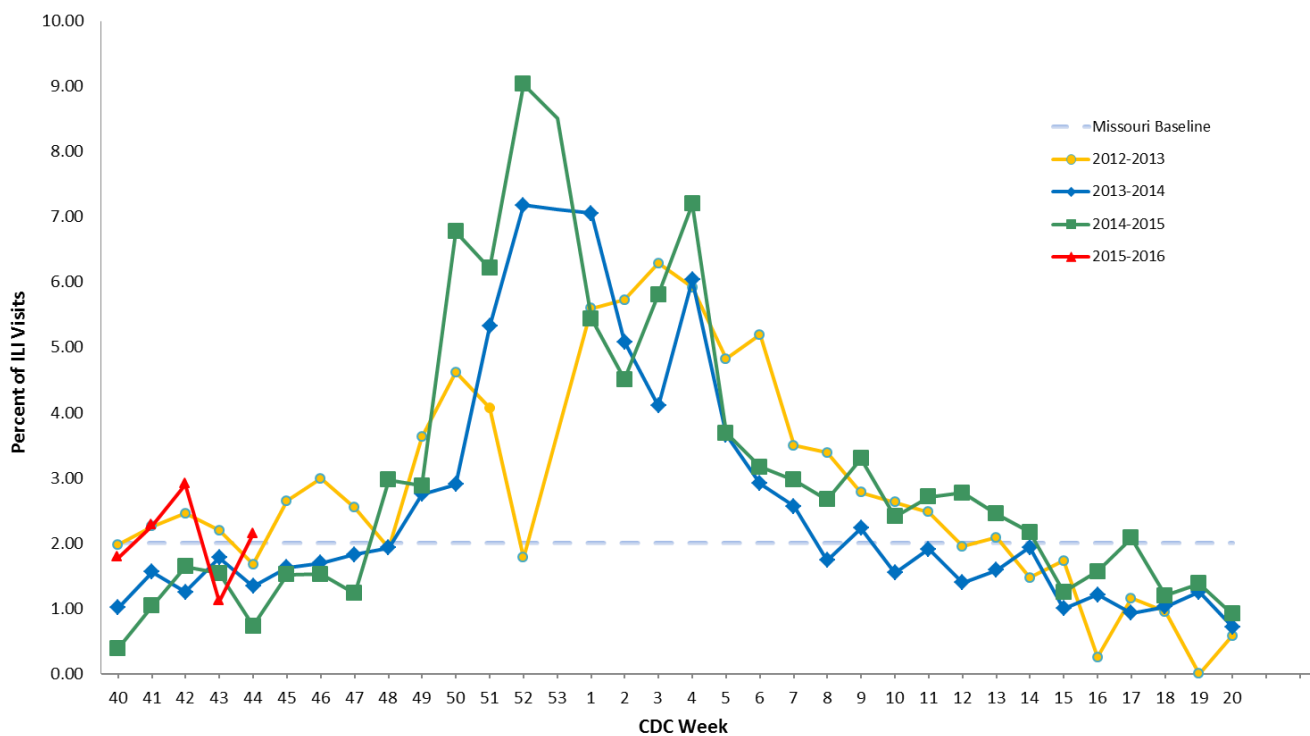[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
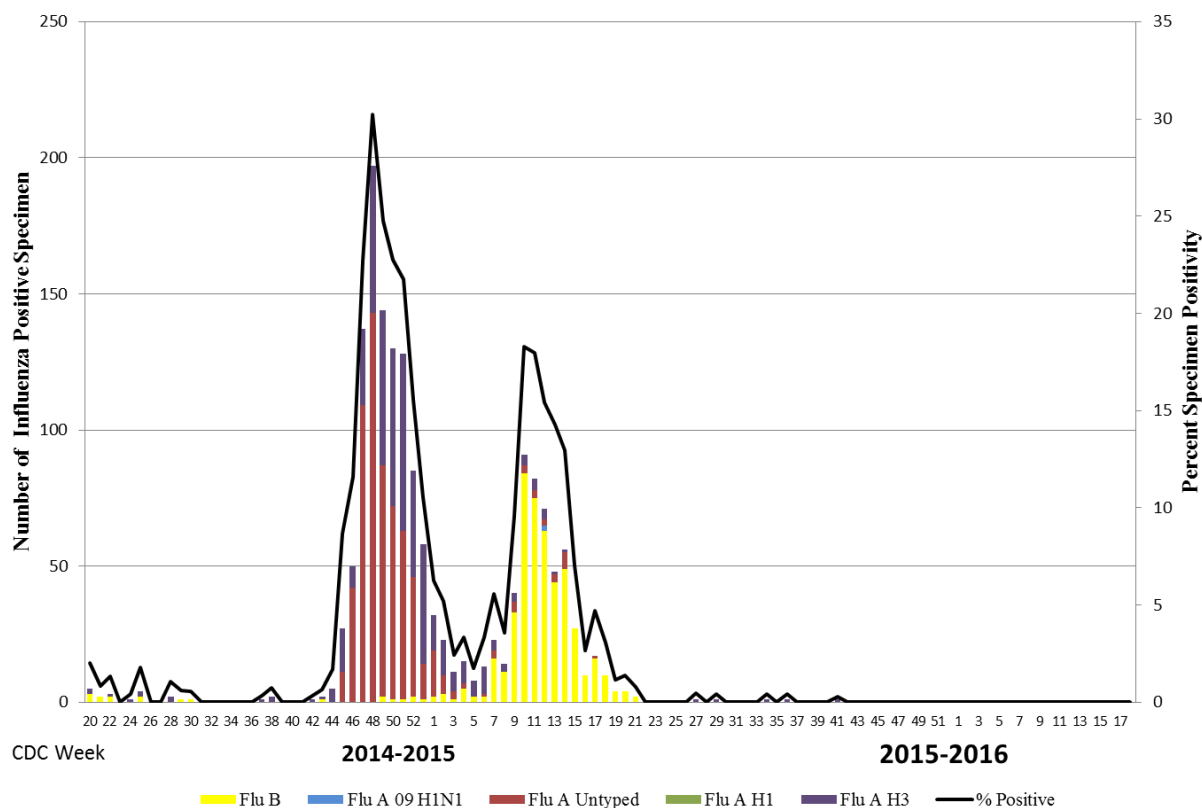*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

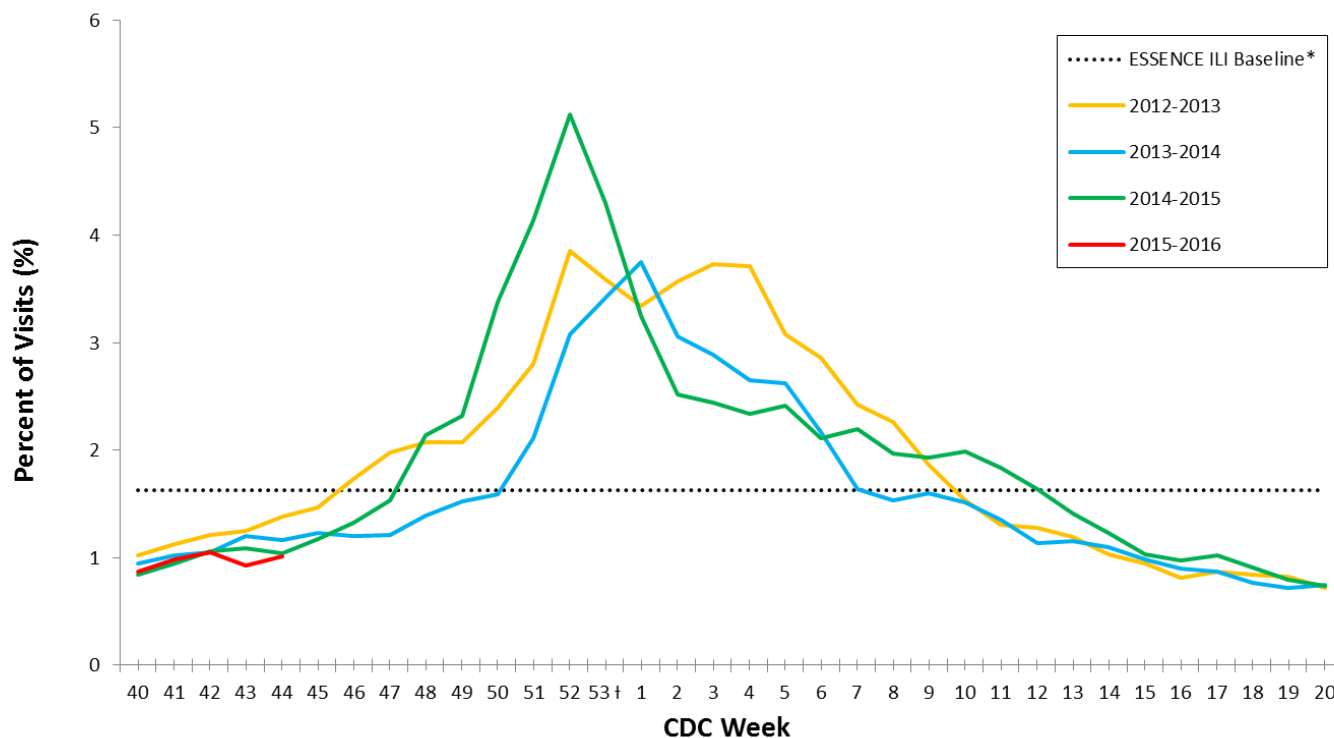## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
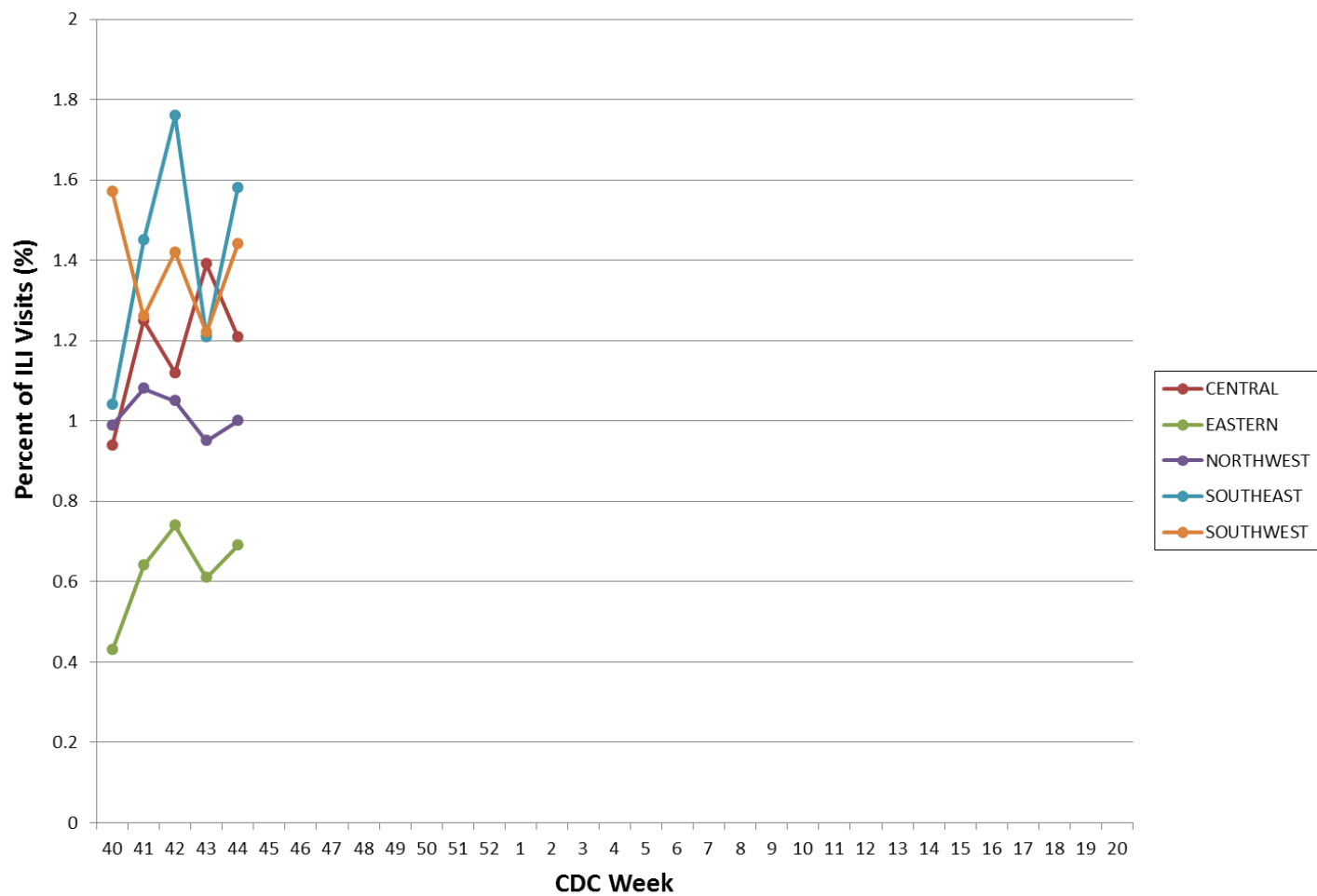
† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending November 7, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.92 | 1.74 | 0.88 | 0.75 | 0.44 | 1.00 |
| Central | 6.55 | 1.44 | 1.01 | 0.26 | 0.28 | 1.21 |
| Eastern | 1.57 | 1.20 | 0.72 | 0.43 | 0.24 | 0.69 |
| Southeast | 6.4 | 2.89 | 1.11 | 0.68 | 0.47 | 1.58 |
| Southwest | 6.77 | 2.96 | 0.77 | 0.30 | 0.51 | 1.44 |
| **Statewide** | **3.34** | **1.80** | **0.83** | **0.49** | **0.35** | **1.01** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending November 7, 2015
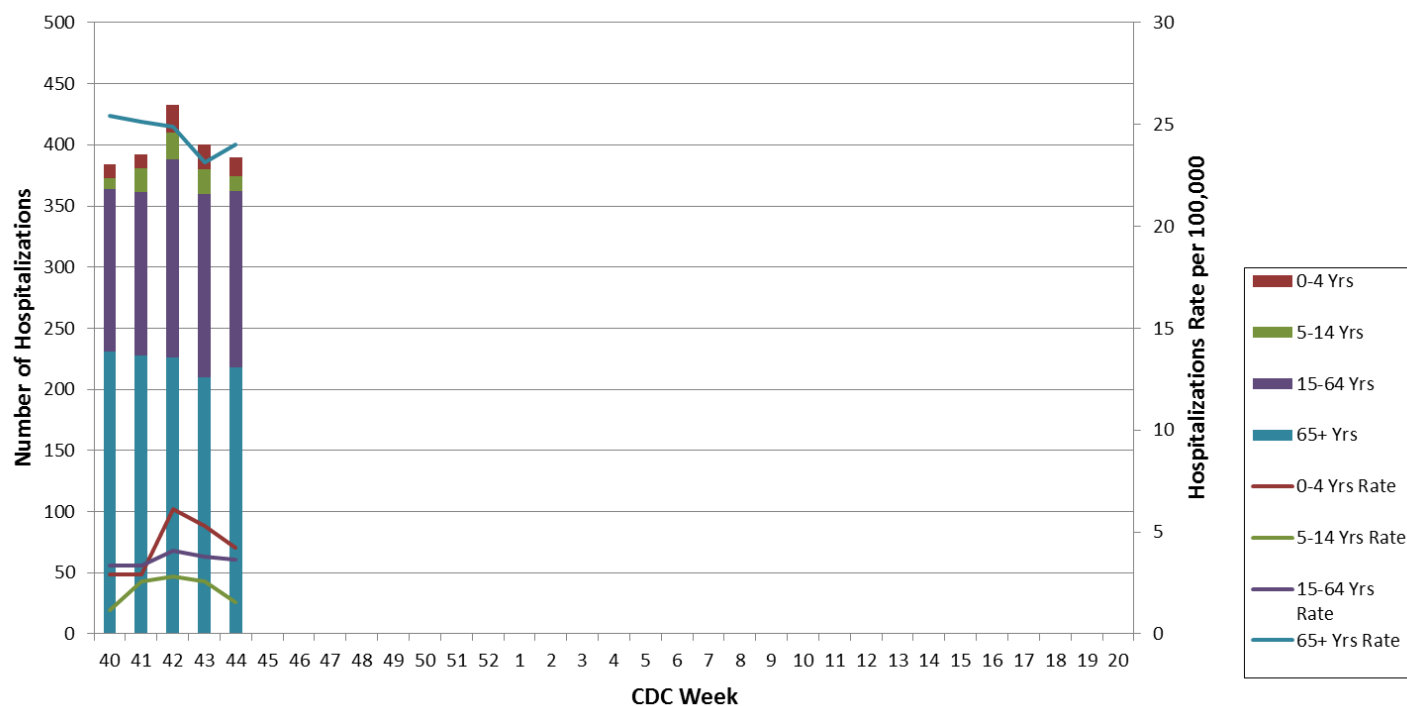


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending November 7, 2015



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=e13ba21a-4ed0-4655-a69d-538f8ef25b79**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 45: November 8 – November 14, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 216 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 45. The influenza type for reported cases season-to-date includes 51% influenza B, 45% influenza A, and 4% untyped. Nine laboratory-positive[3] influenza cases (five influenza B, three influenza A, and 1 untyped) were reported during Week 45. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 45.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 3.61% and 1.12% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 44, 66 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 358 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100$^{o}$F [37.8$^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1Mk34Pg. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 45**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 45 (November 8 – November 14, 2015)**

| Influenza Type | Week 43 | Week 44 | Week 45 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 20 | 17 | 3 | 97 |
| Influenza B | 24 | 19 | 5 | 111 |
| Influenza Unknown Or Untyped | 1 | 3 | 1 | 8 |
| Total | 45 | 39 | 9 | 216 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 45 (November 8 – November 14, 2015)**

| Age Group | Week 45 Cases | Week 45 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 4 | 1 | 52 | 14 |
| 05-14 | 0 | 0 | 34 | 4 |
| 15-64 | 4 | 0 | 90 | 2 |
| 65+ | 1 | 0 | 40 | 4 |
| Total | 9 | 0 | 216 | 4 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 45 (November 8 – November 14, 2015)**
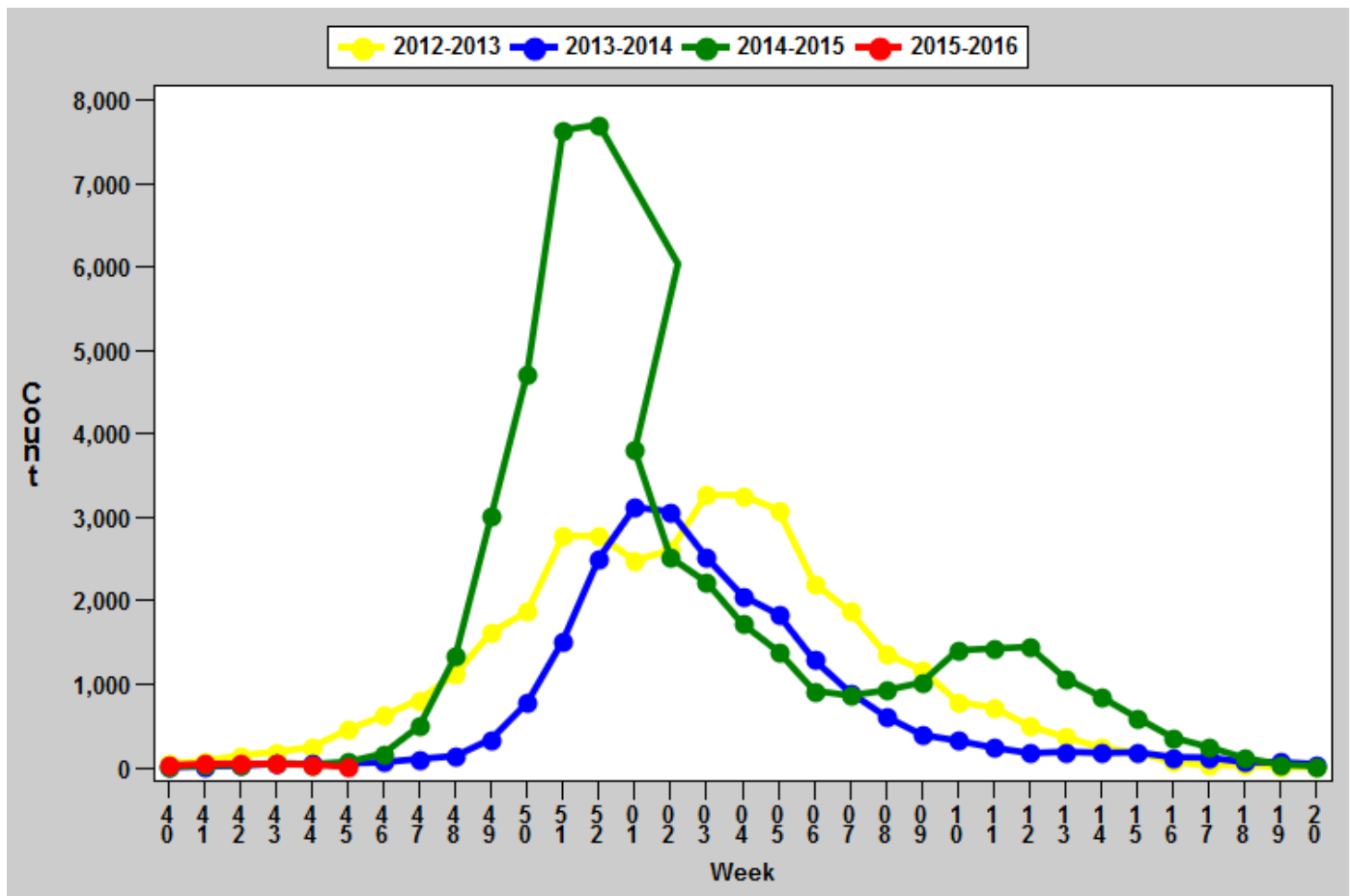
| District | Week 45 Cases | Week 45 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 2 | 0 | 52 | 8 |
| EA | 5 | 0 | 43 | 2 |
| NW | 1 | 0 | 58 | 4 |
| SE | 1 | 0 | 19 | 4 |
| SW | 0 | 0 | 44 | 4 |
| Total | 9 | 0 | 216 | 4 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
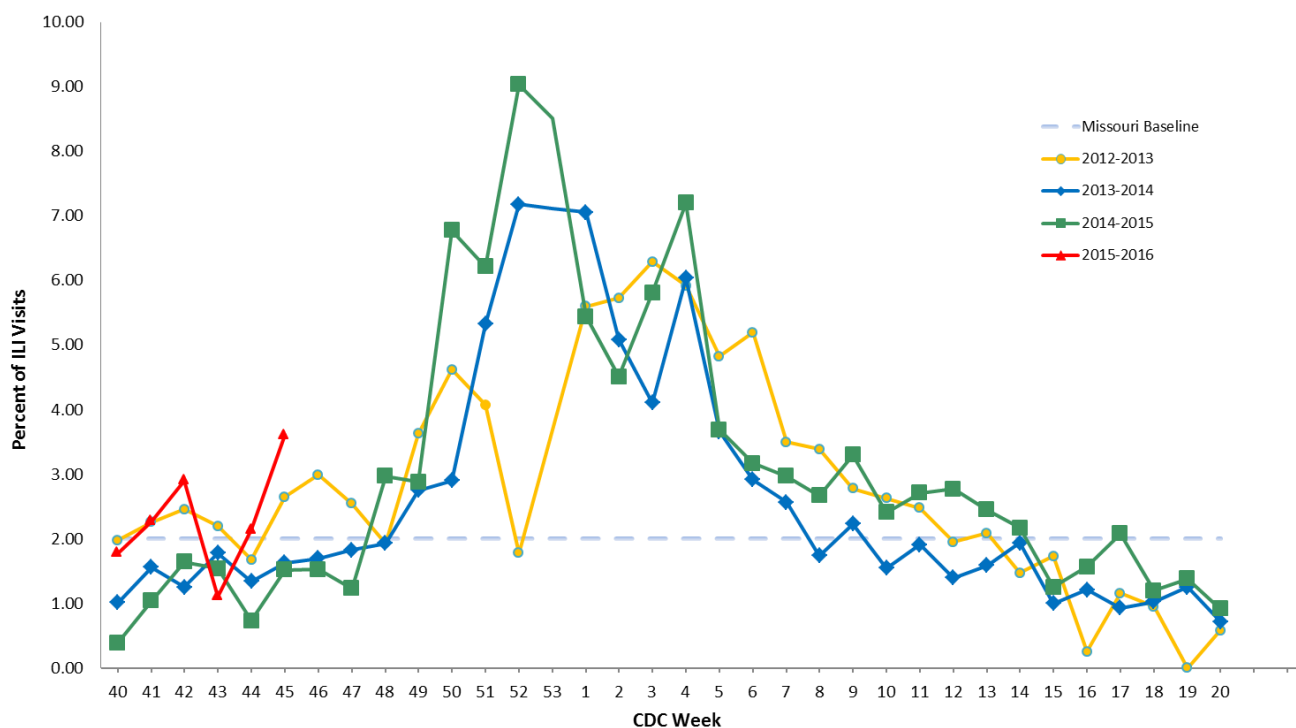[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
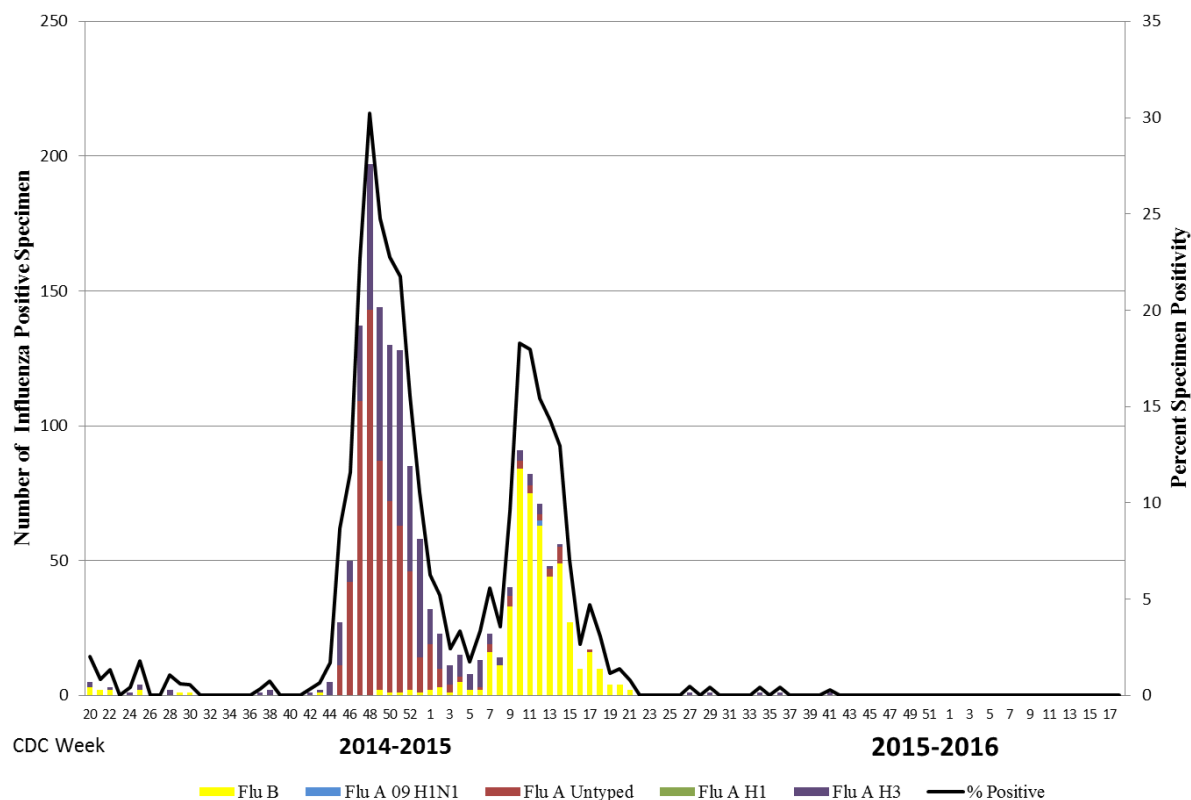*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

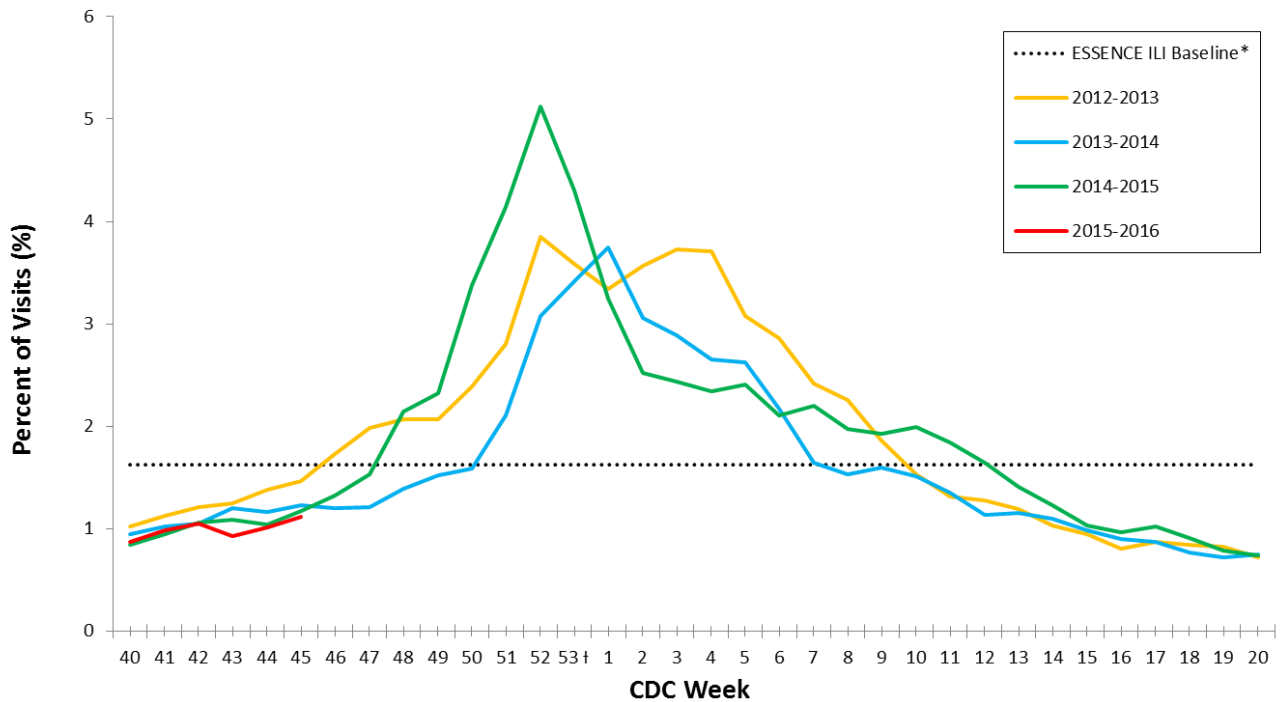**Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
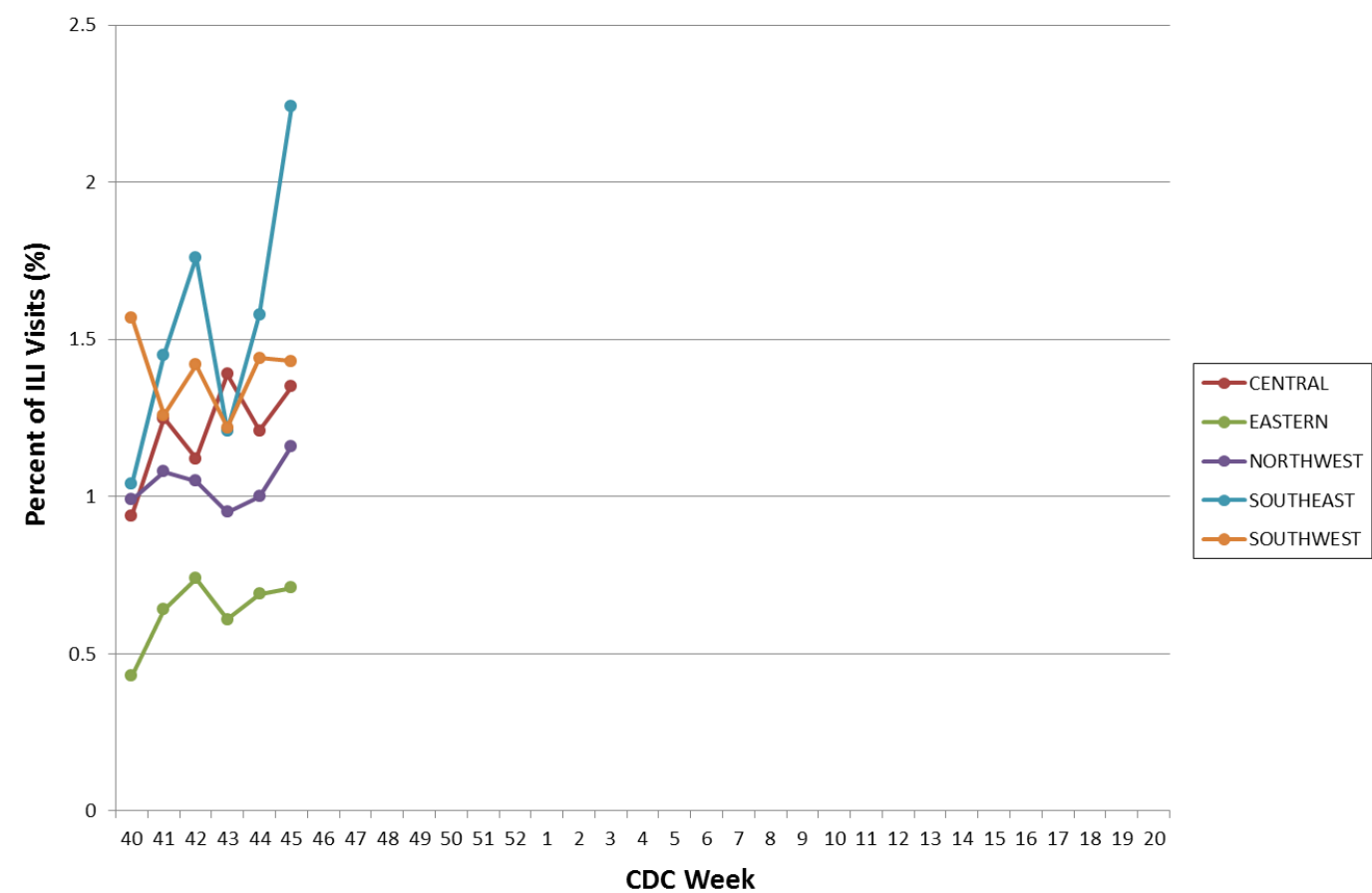†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending November 14, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| **Northwest** | 2.47 | 1.62 | 1.20 | 0.71 | 0.34 | 1.16 |
| **Central** | 5.71 | 1.52 | 1.14 | 1.03 | 0.28 | 1.35 |
| **Eastern** | 0.98 | 1.32 | 0.69 | 0.60 | 0.38 | 0.71 |
| **Southeast** | 10.25 | 6.22 | 0.88 | 0.99 | 0.30 | 2.24 |
| **Southwest** | 4.42 | 2.60 | 1.16 | 0.62 | 0.58 | 1.43 |
| **Statewide** | **3.02** | **1.96** | **0.98** | **0.71** | **0.39** | **1.12** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending November 14, 2015**
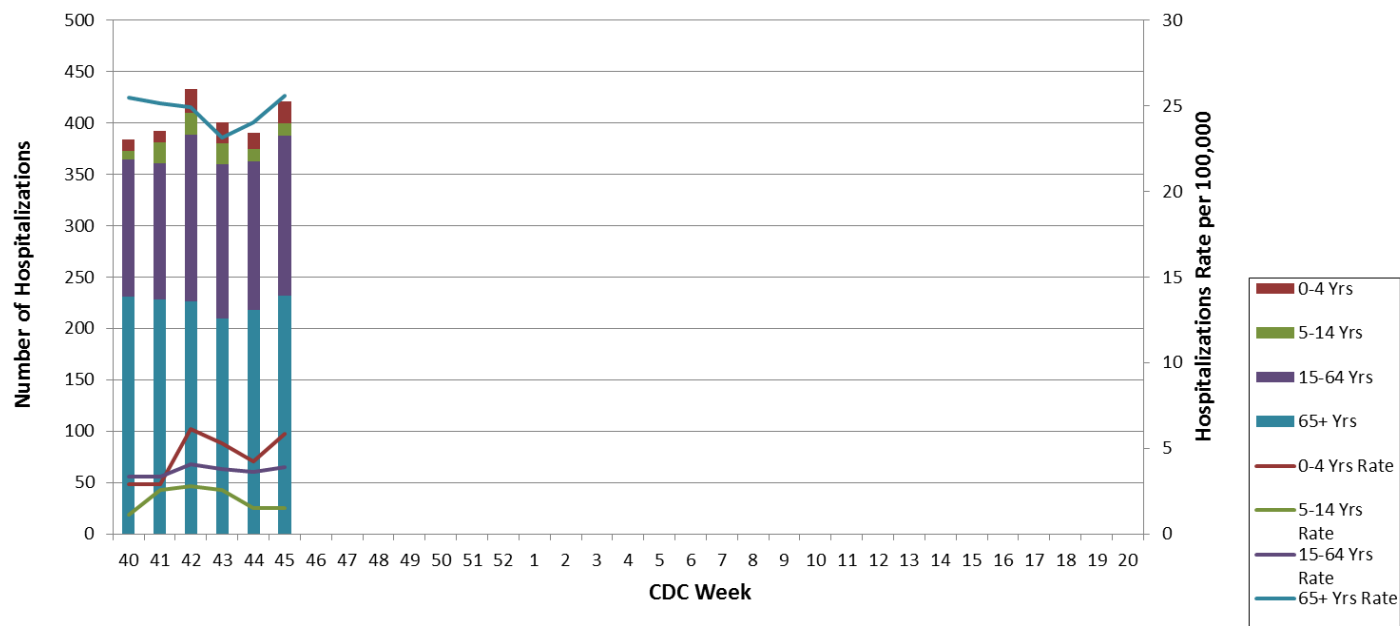


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending November 14, 2015**



Data Source:  Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory:** http://slchlabtestguide.bjc.org/Default.aspx?url=139b7d2b-c25e-4d65-9260-7188e3d11778

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 46: November 15 – November 21, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 275 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 46. The influenza type for reported cases season-to-date includes 50% influenza B, 45% influenza A, and 5% untyped. Eleven laboratory-positive[3] influenza cases (five influenza A, four influenza B, and 2 untyped) were reported during Week 46. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 46.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.08% and 1.13% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 45, 53 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 411 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1lg1qF6. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 46**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 46 (November 15 – November 21, 2015)**

| Influenza Type | Week 44 | Week 45 | Week 46 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 18 | 18 | 5 | 122 |
| Influenza B | 21 | 20 | 4 | 138 |
| Influenza Unknown Or Untyped | 3 | 3 | 2 | 15 |
| Total | 42 | 41 | 11 | 275 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 46 (November 15 – November 21, 2015)**

| Age Group | Week 46 Cases | Week 46 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 1 | 0 | 73 | 19 |
| 05-14 | 3 | 0 | 43 | 5 |
| 15-64 | 6 | 0 | 116 | 3 |
| 65+ | 1 | 0 | 43 | 5 |
| Total | 11 | 0 | 275 | 5 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 46 (November 15 – November 21, 2015)**
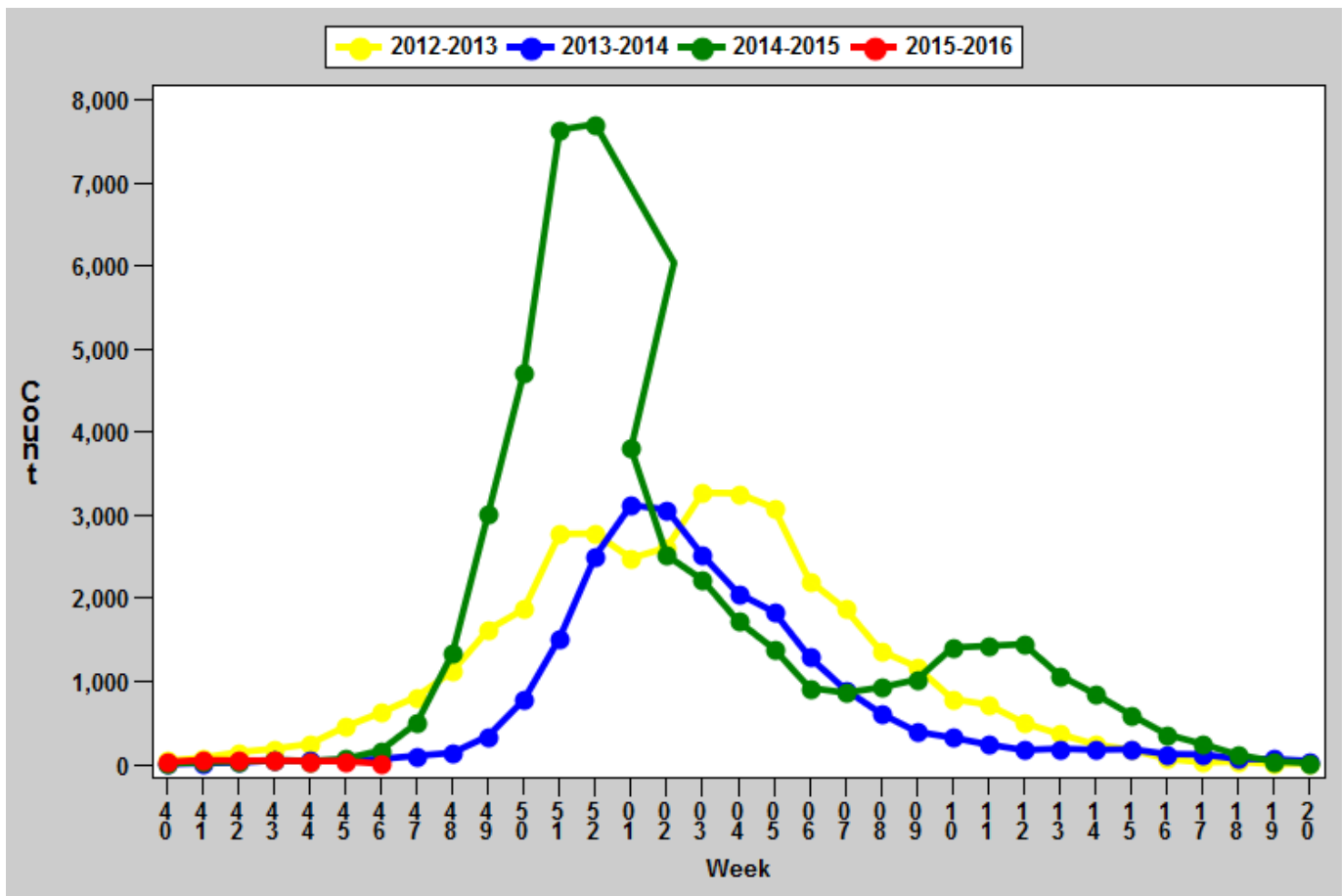
| District | Week 46 Cases | Week 46 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 2 | 0 | 66 | 10 |
| EA | 1 | 0 | 49 | 2 |
| NW | 5 | 0 | 83 | 5 |
| SE | 3 | 1 | 28 | 6 |
| SW | 0 | 0 | 49 | 5 |
| Total | 11 | 0 | 275 | 5 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
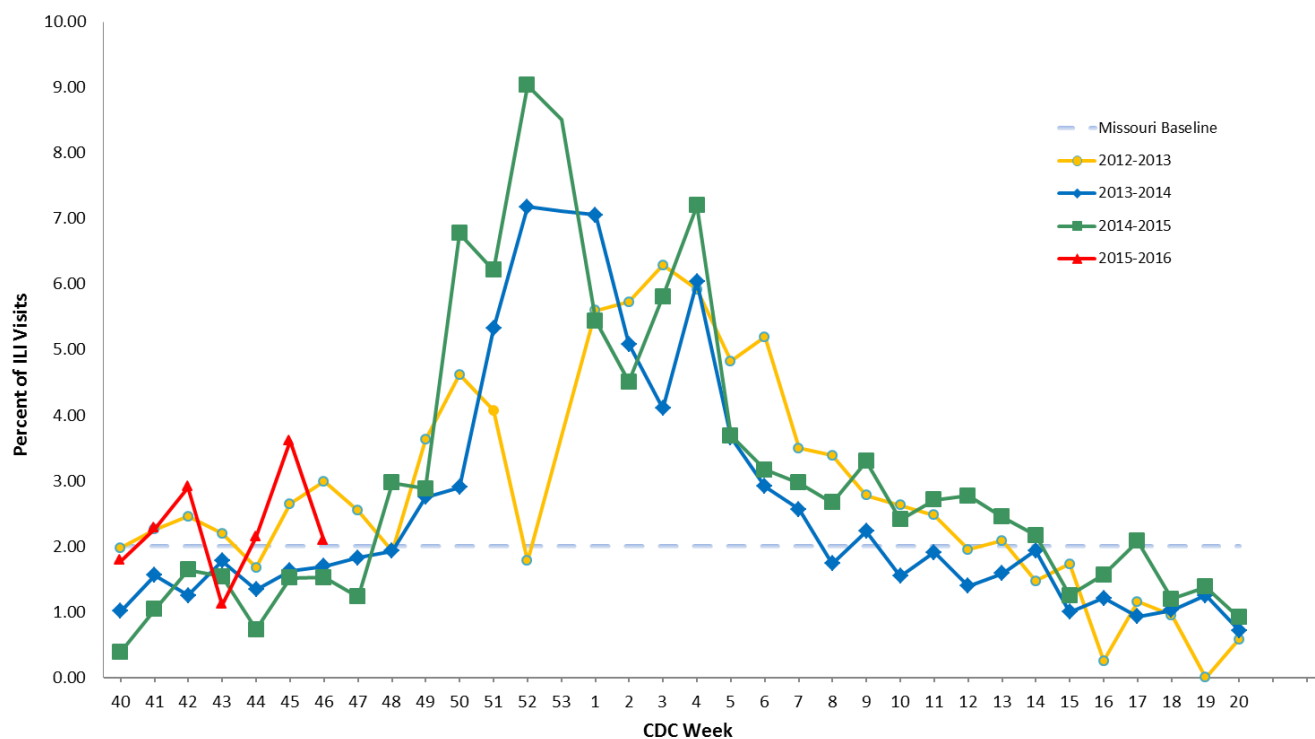[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
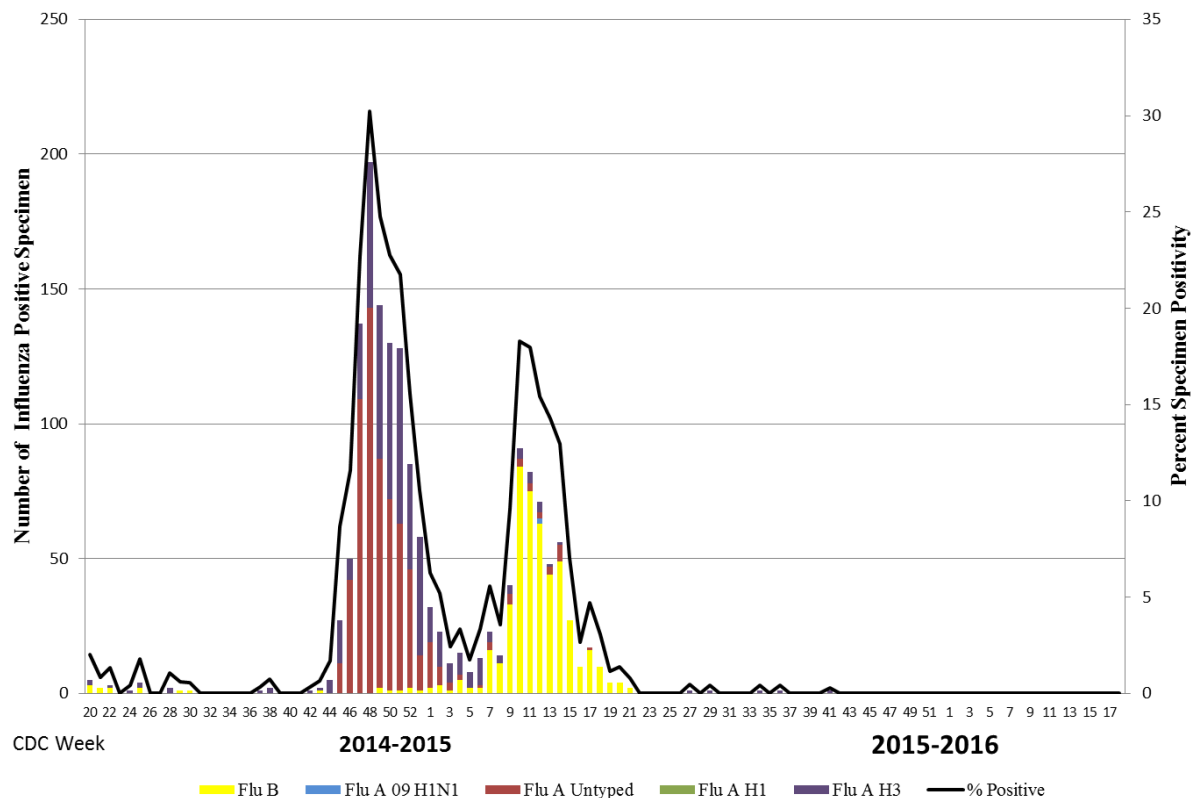*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

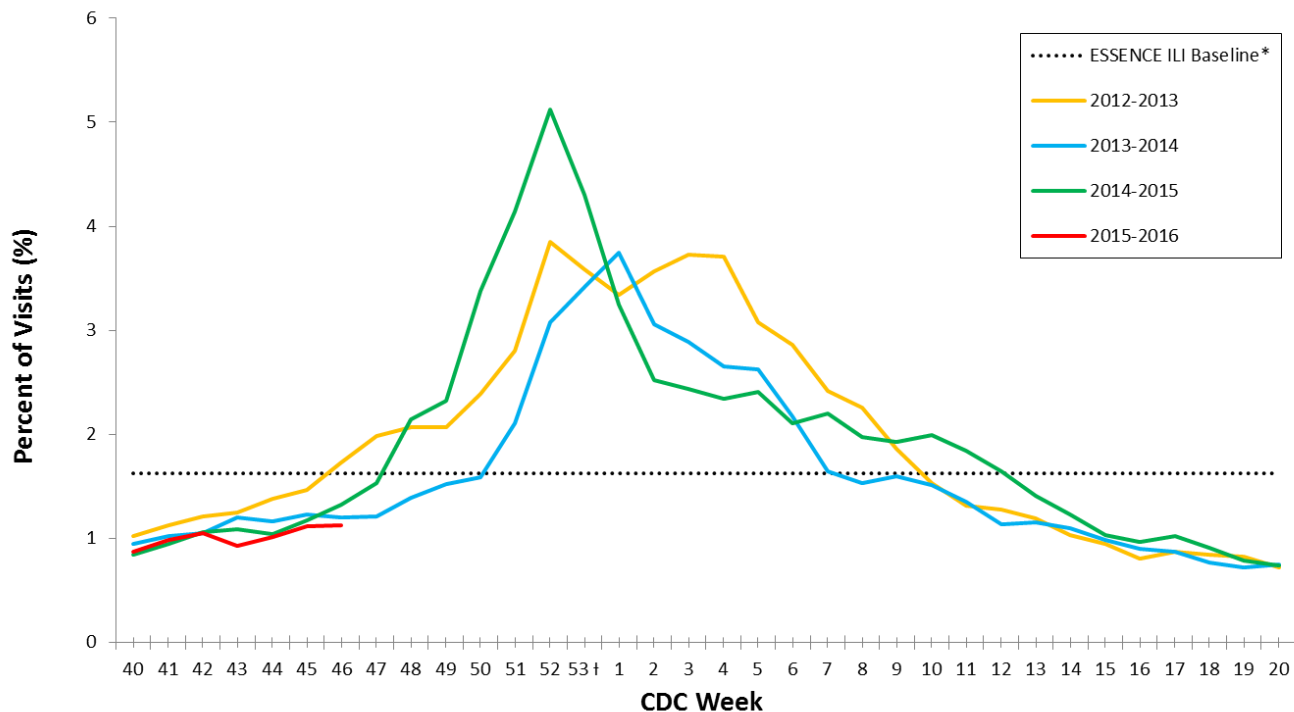# Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
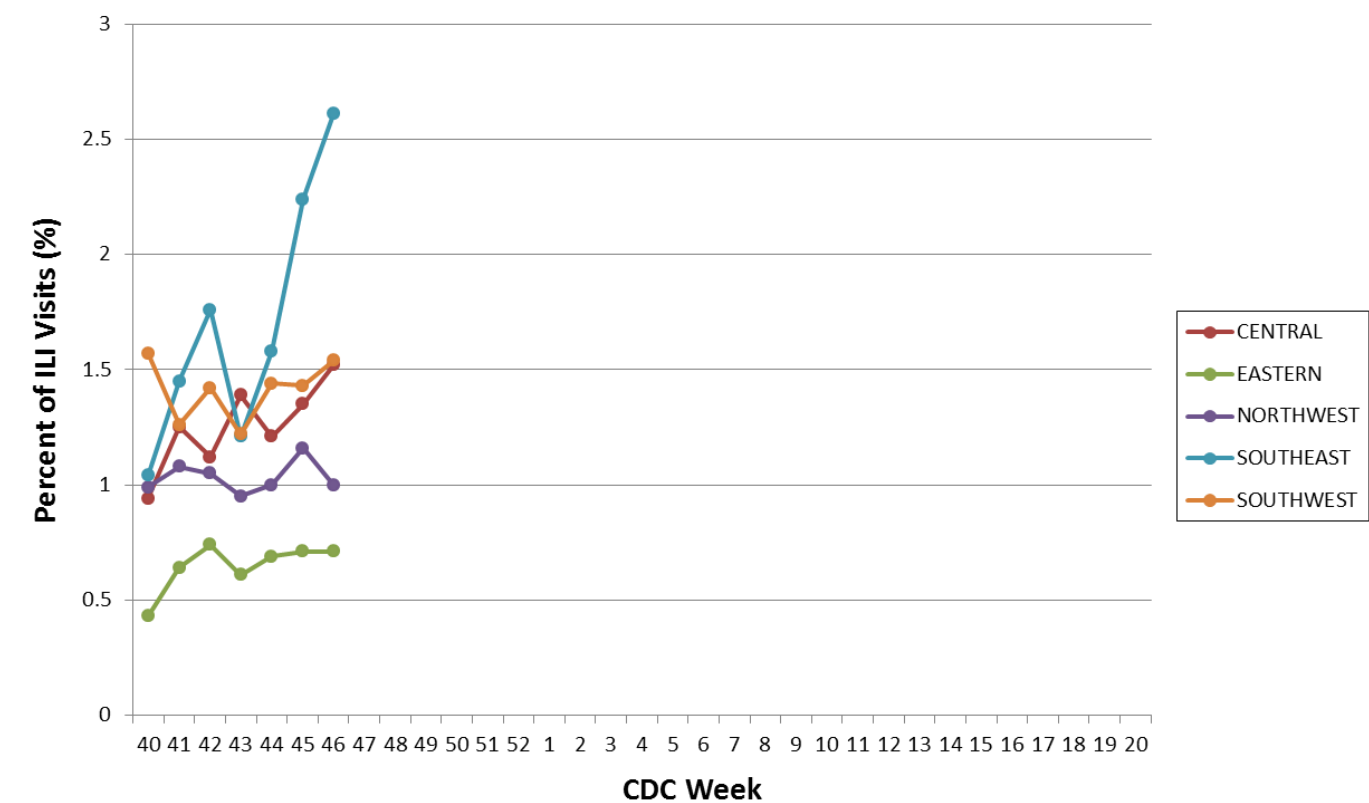
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending November 21, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| **Northwest** | 2.07 | 1.89 | 0.90 | 0.50 | 0.57 | 1.00 |
| **Central** | 4.43 | 2.55 | 1.42 | 0.93 | 0.48 | 1.52 |
| **Eastern** | 1.72 | 0.96 | 0.85 | 0.45 | 0.16 | 0.71 |
| **Southeast** | 11.11 | 4.45 | 1.43 | 1.54 | 0.61 | 2.61 |
| **Southwest** | 4.70 | 4.73 | 0.84 | 0.58 | 0.14 | 1.54 |
| **Statewide** | **3.22** | **2.30** | **0.96** | **0.60** | **0.32** | **1.13** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending November 21, 2015**
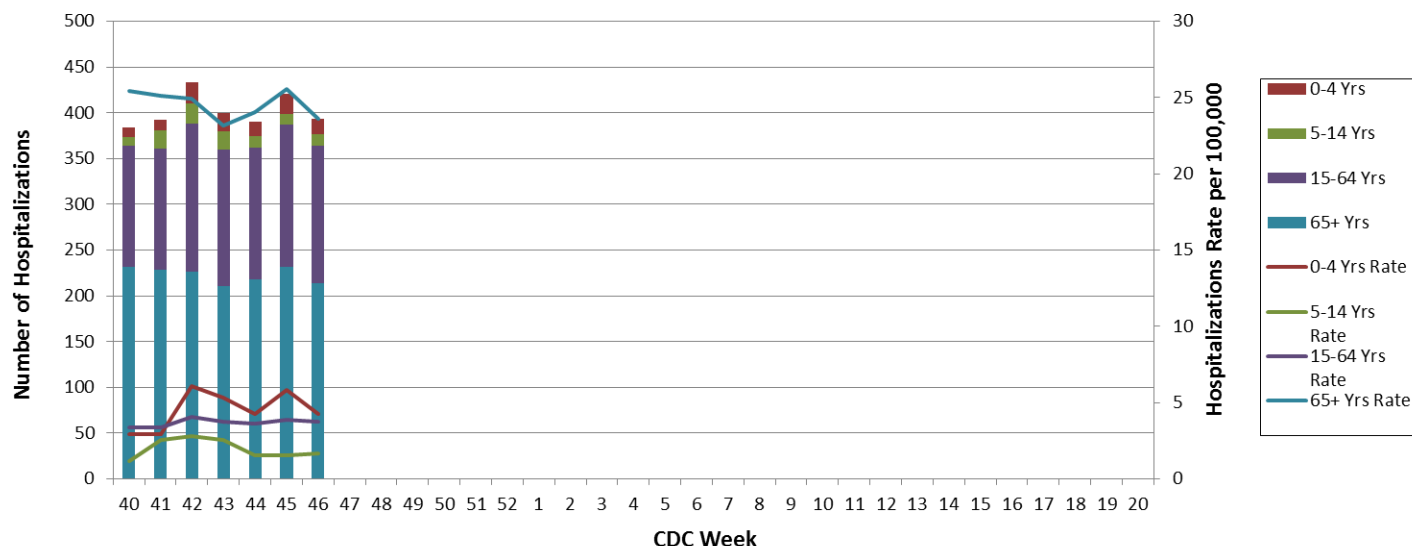


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending November 21, 2015**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=139b7d2b-c25e-4d65-9260-7188e3d11778**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 47: November 22 – November 28, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 319 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 47. The influenza type for reported cases season-to-date includes 49% influenza B, 46% influenza A, and 5% untyped. Nine laboratory-positive[3] influenza cases (seven influenza A, two influenza B) were reported during Week 47. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 47.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.45% and 1.10% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 46, 75 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 486 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1SuqovF. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 47**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,**
**Missouri, CDC Week 47 (November 22 – November 28, 2015)**

| Influenza Type | Week 45 | Week 46 | Week 47 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 22 | 18 | 7 | 147 |
| Influenza B | 29 | 11 | 2 | 157 |
| Influenza Unknown Or Untyped | 3 | 2 | 0 | 15 |
| Total | 54 | 31 | 9 | 319 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,**
**Missouri, CDC Week 47 (November 22 – November 28, 2015)**

| Age Group | Week 47 Cases | Week 47 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 4 | 1 | 84 | 22 |
| 05-14 | 0 | 0 | 48 | 6 |
| 15-64 | 3 | 0 | 131 | 3 |
| 65+ | 2 | 0 | 56 | 6 |
| Total | 9 | 0 | 319 | 5 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 47 (November 22 – November 28, 2015)**
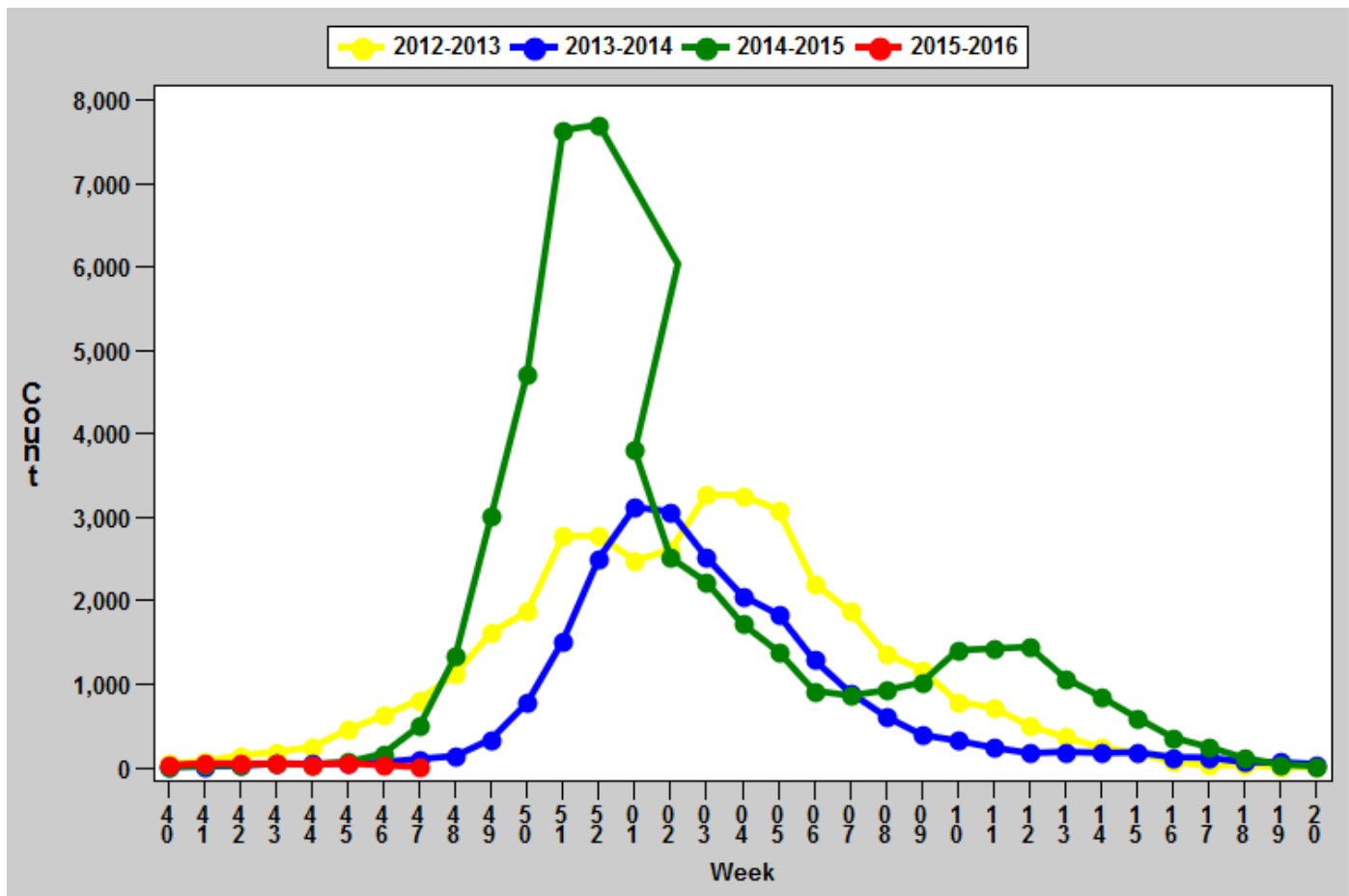
| District | Week 47 Cases | Week 47 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 0 | 0 | 70 | 11 |
| EA | 6 | 0 | 62 | 3 |
| NW | 2 | 0 | 98 | 6 |
| SE | 0 | 0 | 30 | 6 |
| SW | 1 | 0 | 59 | 6 |
| Total | 9 | 0 | 319 | 5 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
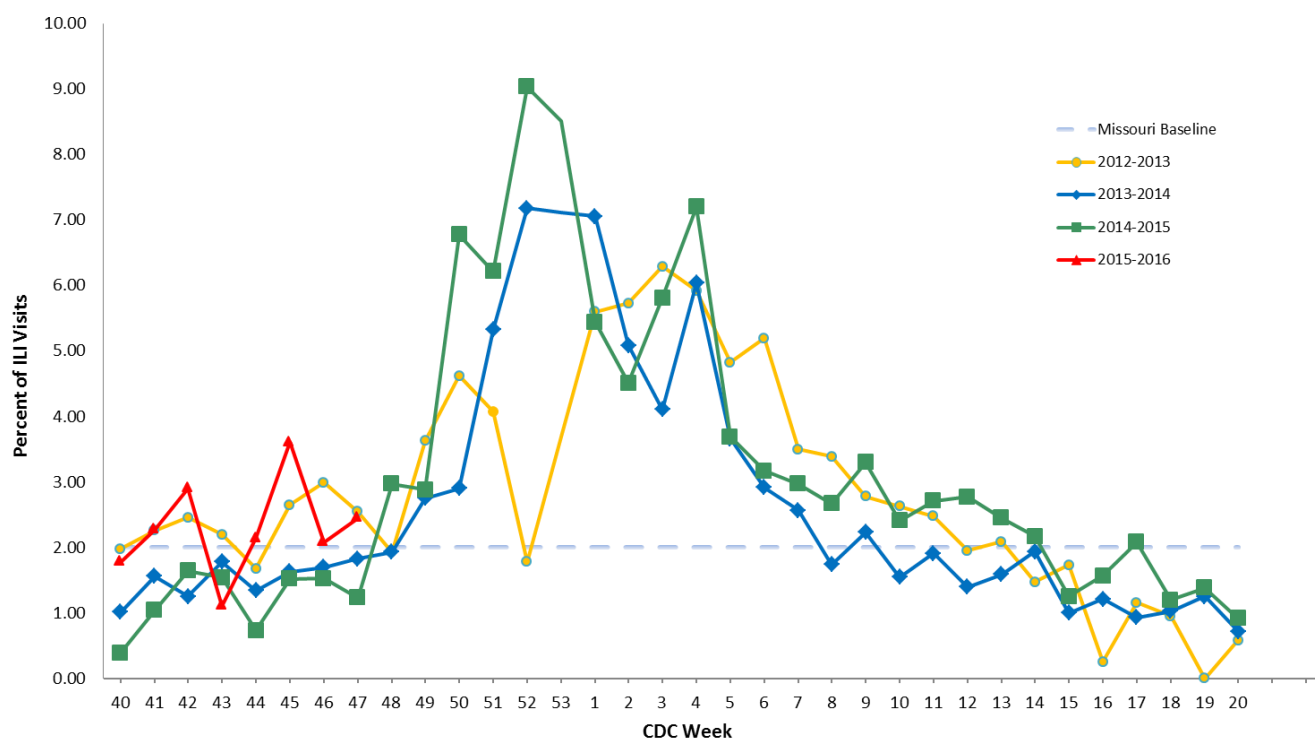[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
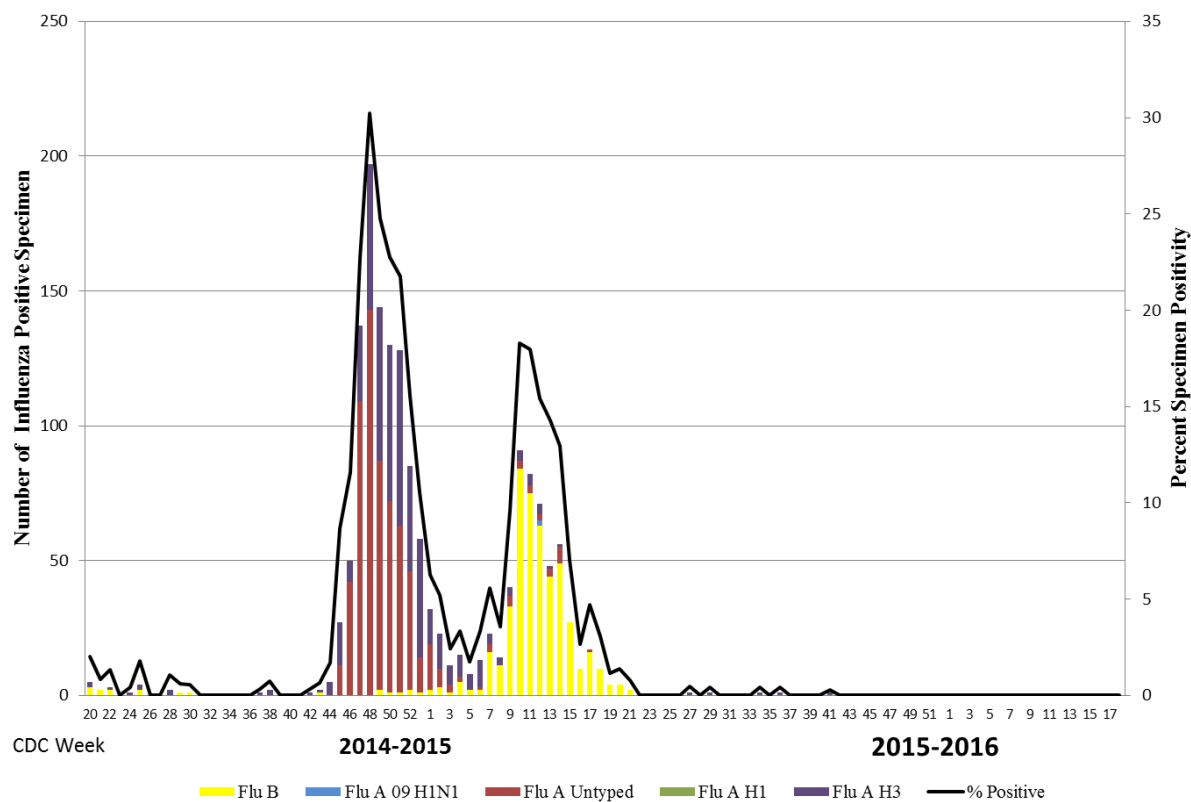*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20)

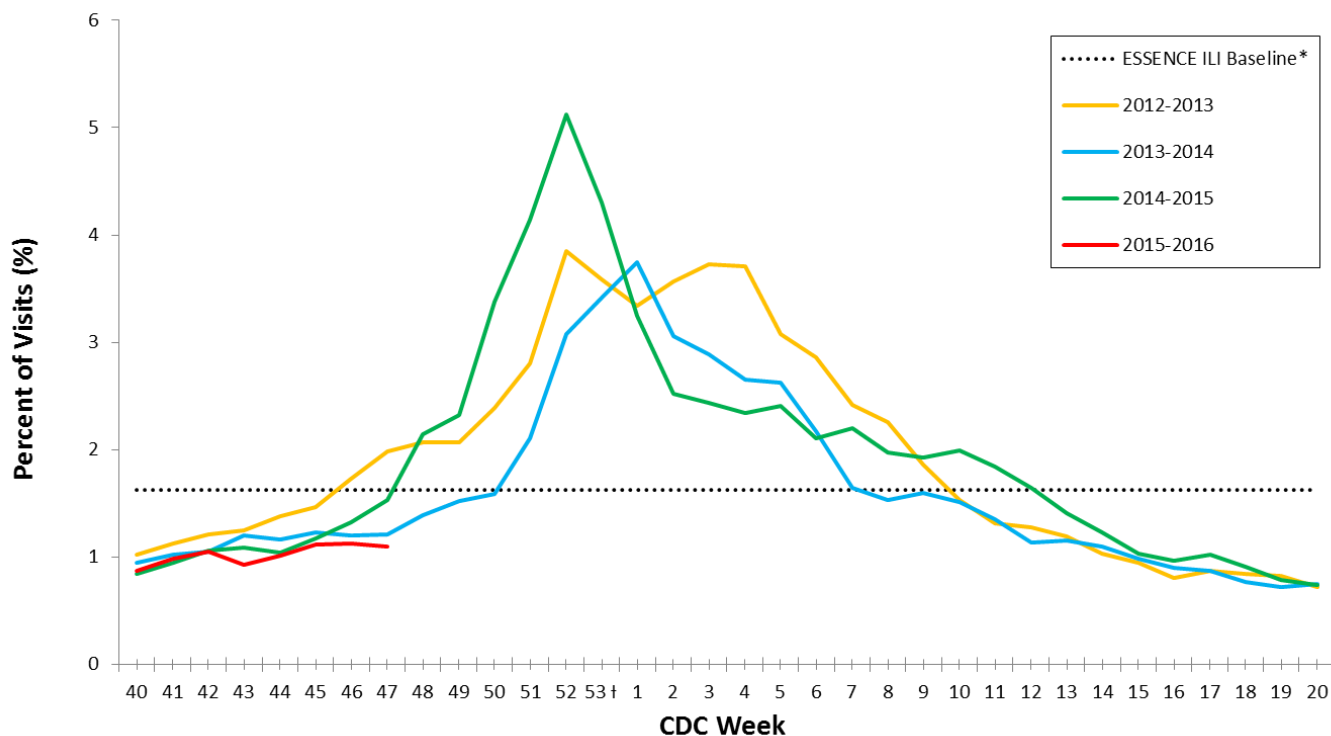## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
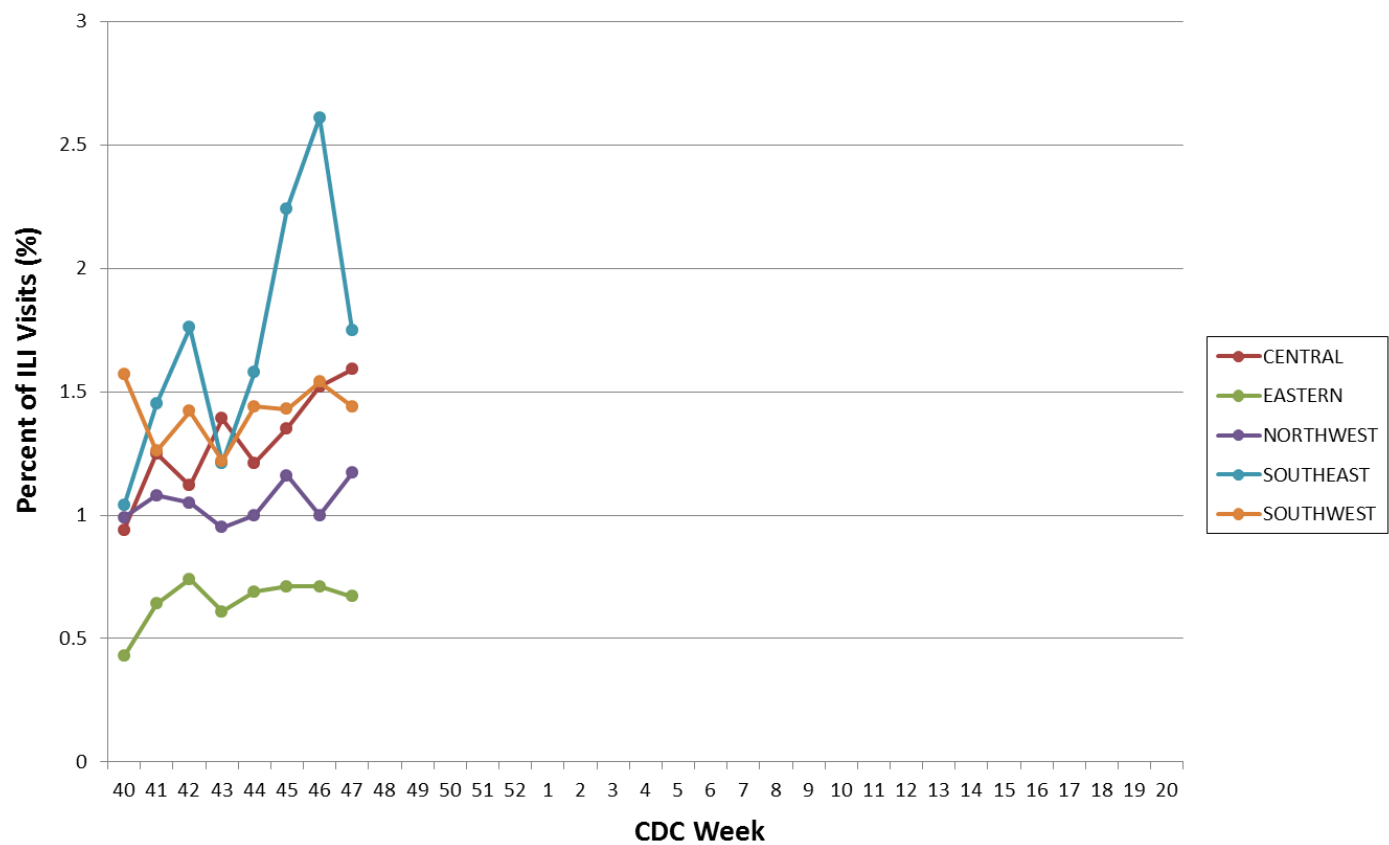†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending November 28, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.61 | 1.99 | 1.01 | 0.94 | 0.34 | 1.17 |
| Central | 4.84 | 3.67 | 1.15 | 1.06 | 0.48 | 1.59 |
| Eastern | 1.14 | 1.31 | 0.76 | 0.41 | 0.22 | 0.67 |
| Southeast | 5.94 | 5.19 | 0.78 | 0.75 | 0.77 | 1.75 |
| Southwest | 4.72 | 4.43 | 0.66 | 0.74 | 0.37 | 1.44 |
| **Statewide** | **2.89** | **2.53** | **0.86** | **0.70** | **0.35** | **1.10** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending November 28, 2015**
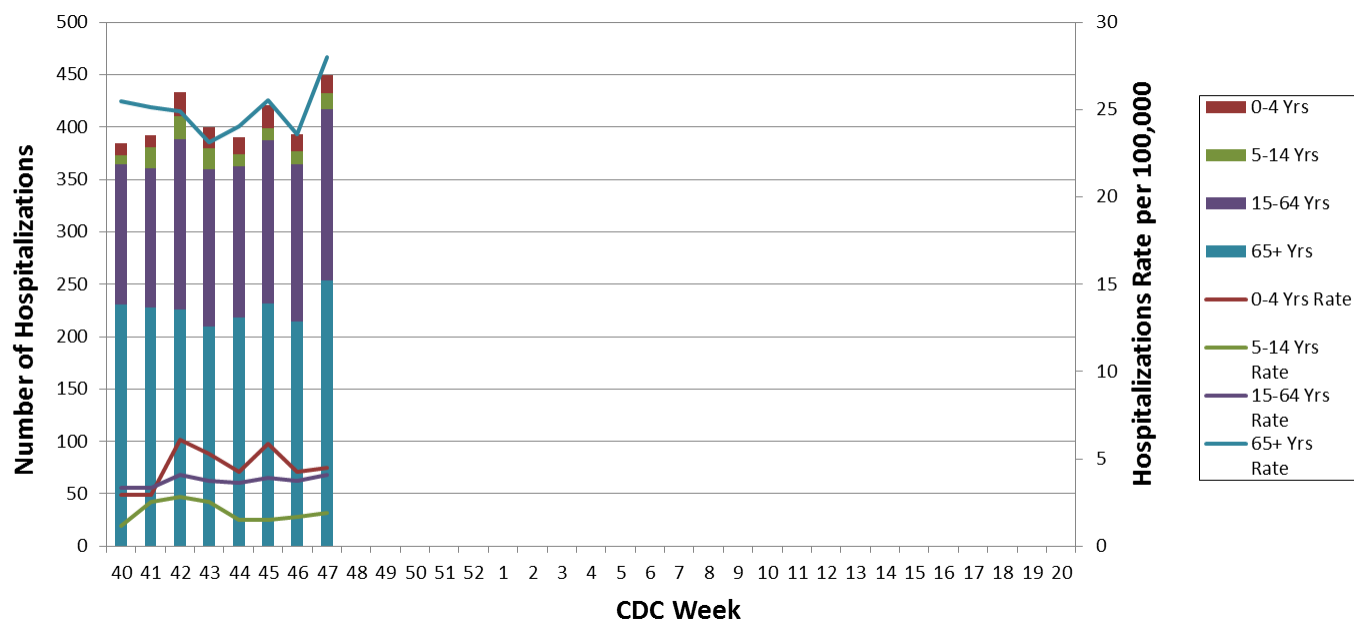


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending November 28, 2015**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=139b7d2b-c25e-4d65-9260-7188e3d11778**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)
http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:
http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 48: November 29 – December 5, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 373 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 48. The influenza type for reported cases season-to-date includes 49% influenza B, 45% influenza A, and 6% untyped. Sixteen laboratory-positive[3] influenza cases (eight influenza B, seven influenza A, and 1 untyped) were reported during Week 48. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 48.

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 1.37% and 1.11% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 47, 41 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 527 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}F$ [$37.8^{o}C$] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1NU2Hif. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 48**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 48 (November 29 – December 5, 2015)**

| Influenza Type | Week 46 | Week 47 | Week 48 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 21 | 16 | 7 | 169 |
| Influenza B | 19 | 10 | 8 | 184 |
| Influenza Unknown Or Untyped | 4 | 2 | 1 | 20 |
| Total | 44 | 28 | 16 | 373 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 48 (November 29 – December 5, 2015)**

| Age Group | Week 48 Cases | Week 48 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 3 | 1 | 97 | 26 |
| 05-14 | 3 | 0 | 58 | 7 |
| 15-64 | 9 | 0 | 159 | 4 |
| 65+ | 1 | 0 | 59 | 6 |
| Total | 16 | 0 | 373 | 6 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 48 (November 29 – December 5, 2015)**
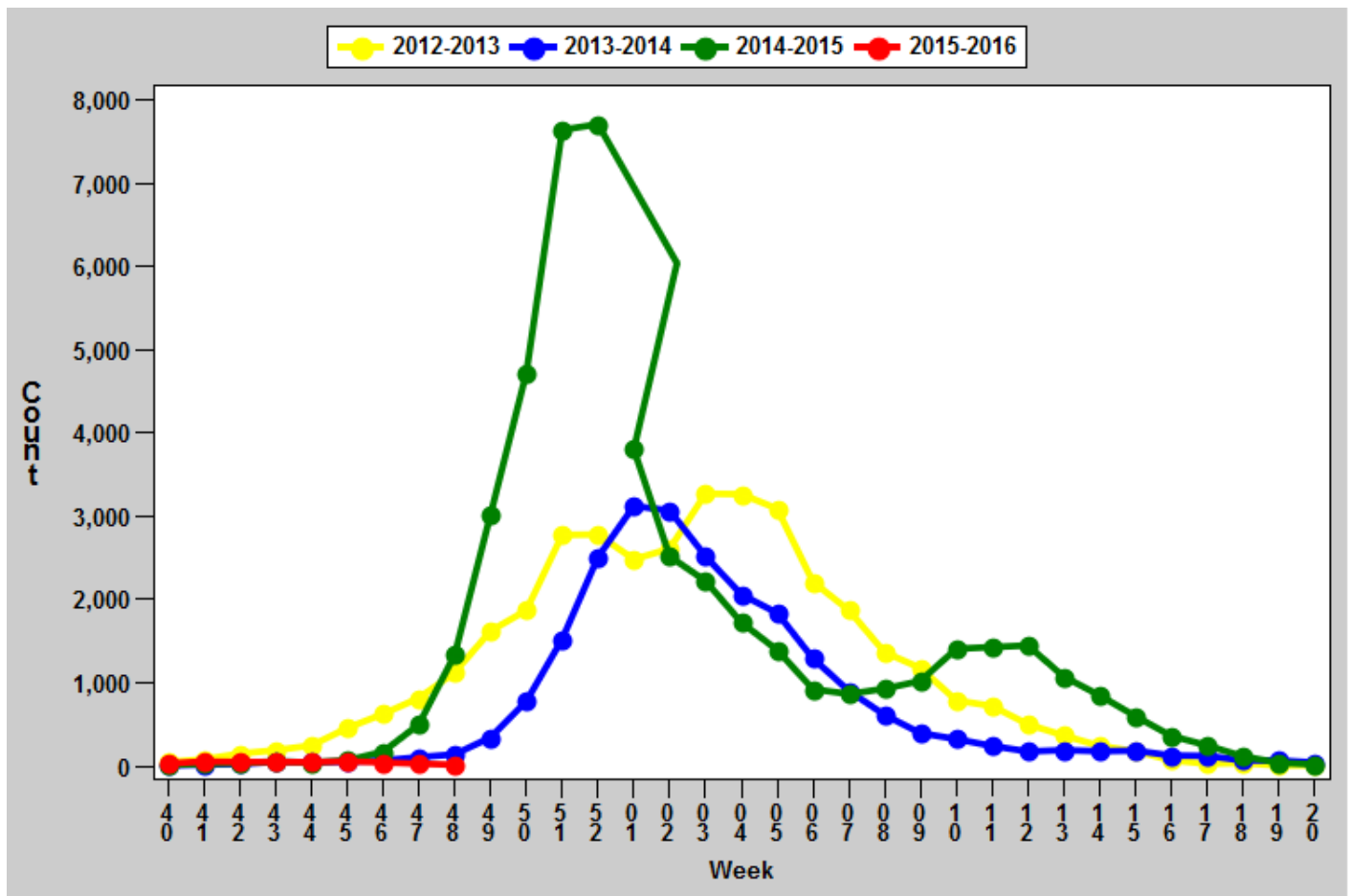
| District | Week 48 Cases | Week 48 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 1 | 0 | 79 | 12 |
| EA | 11 | 0 | 79 | 4 |
| NW | 1 | 0 | 112 | 7 |
| SE | 2 | 0 | 34 | 7 |
| SW | 1 | 0 | 69 | 6 |
| Total | 16 | 0 | 373 | 6 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
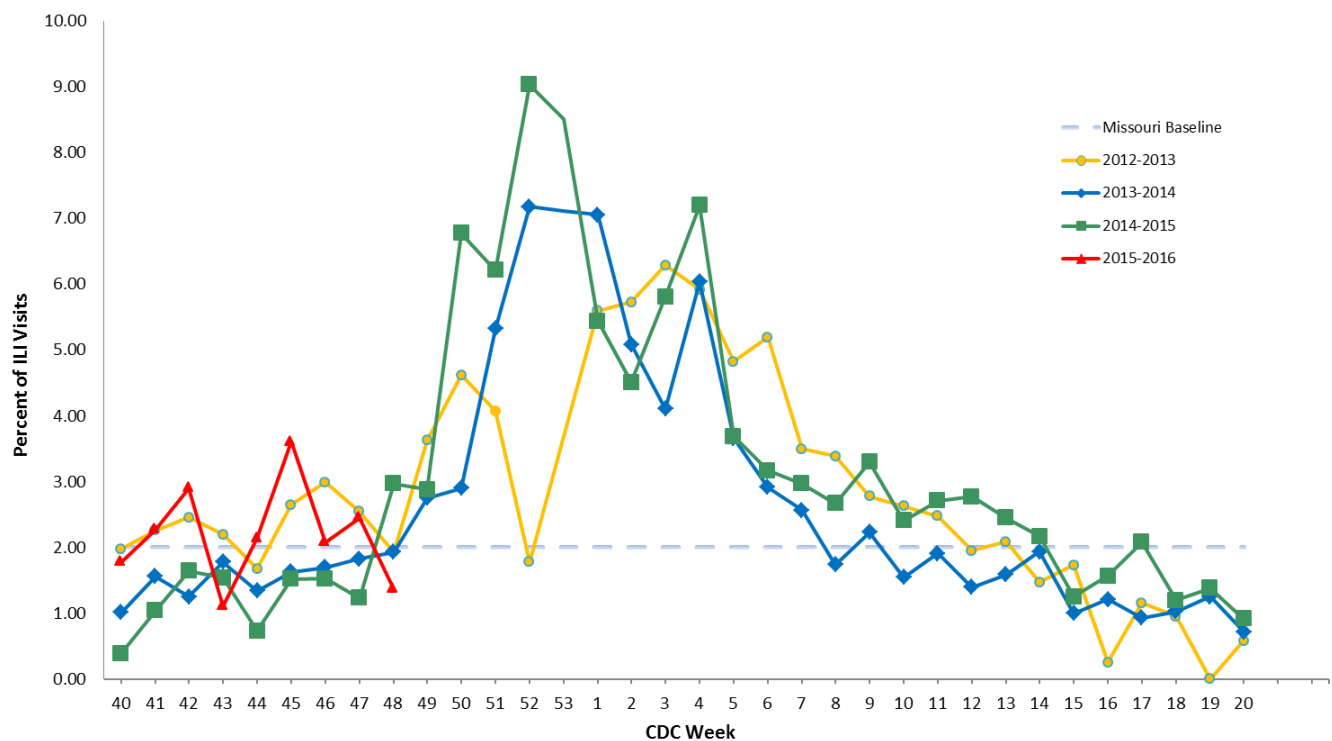[‡] Incidence Rate per 100,000 population


**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
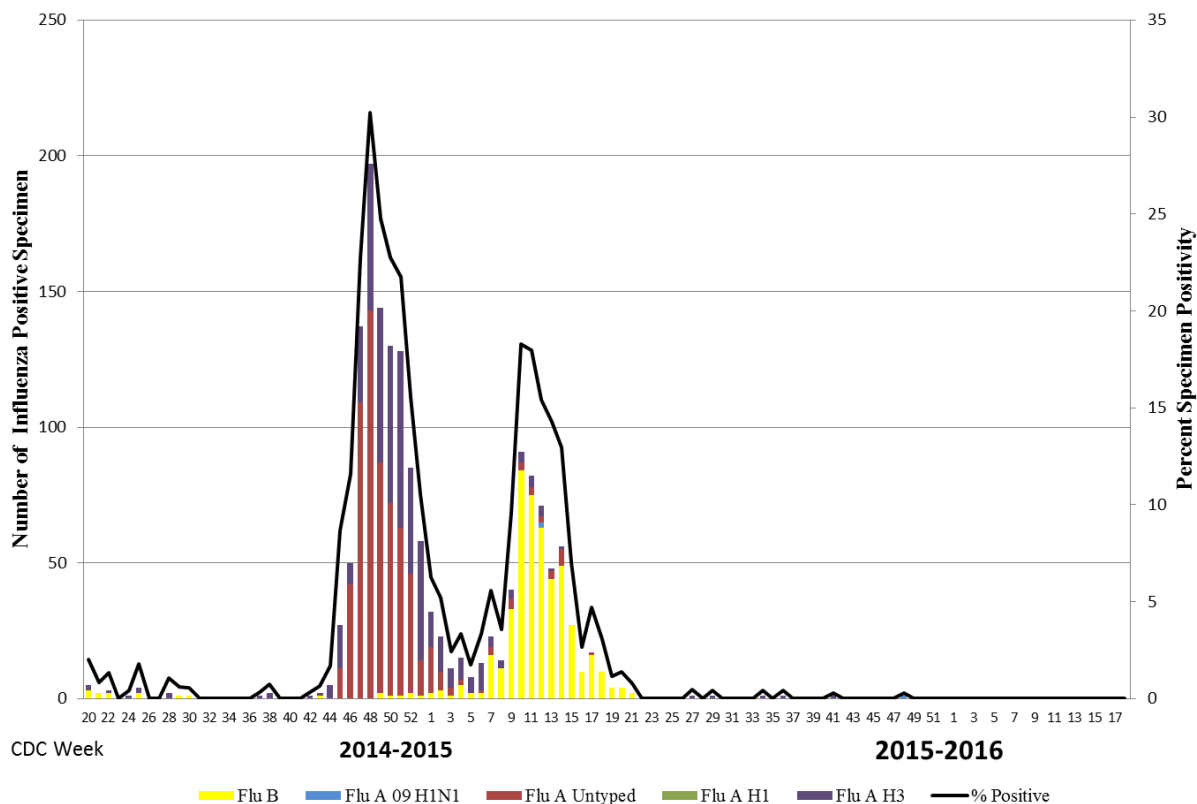*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

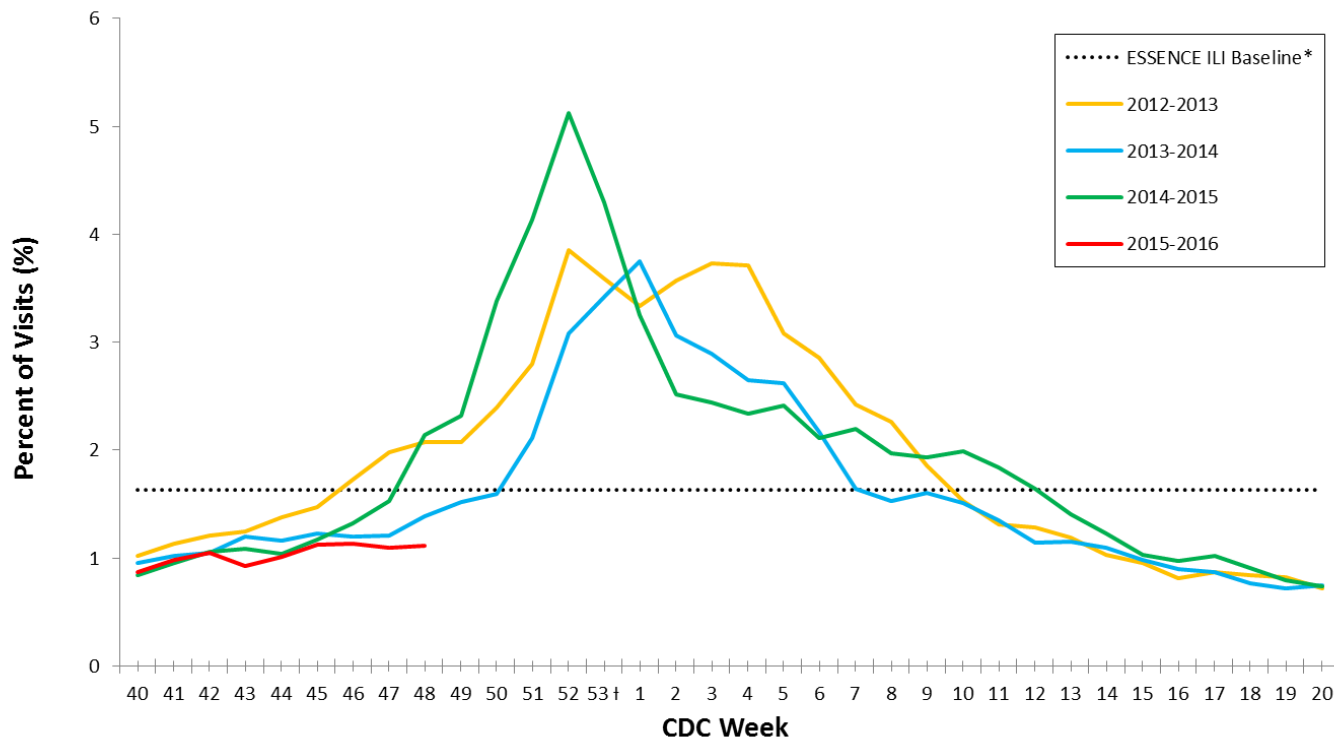# Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
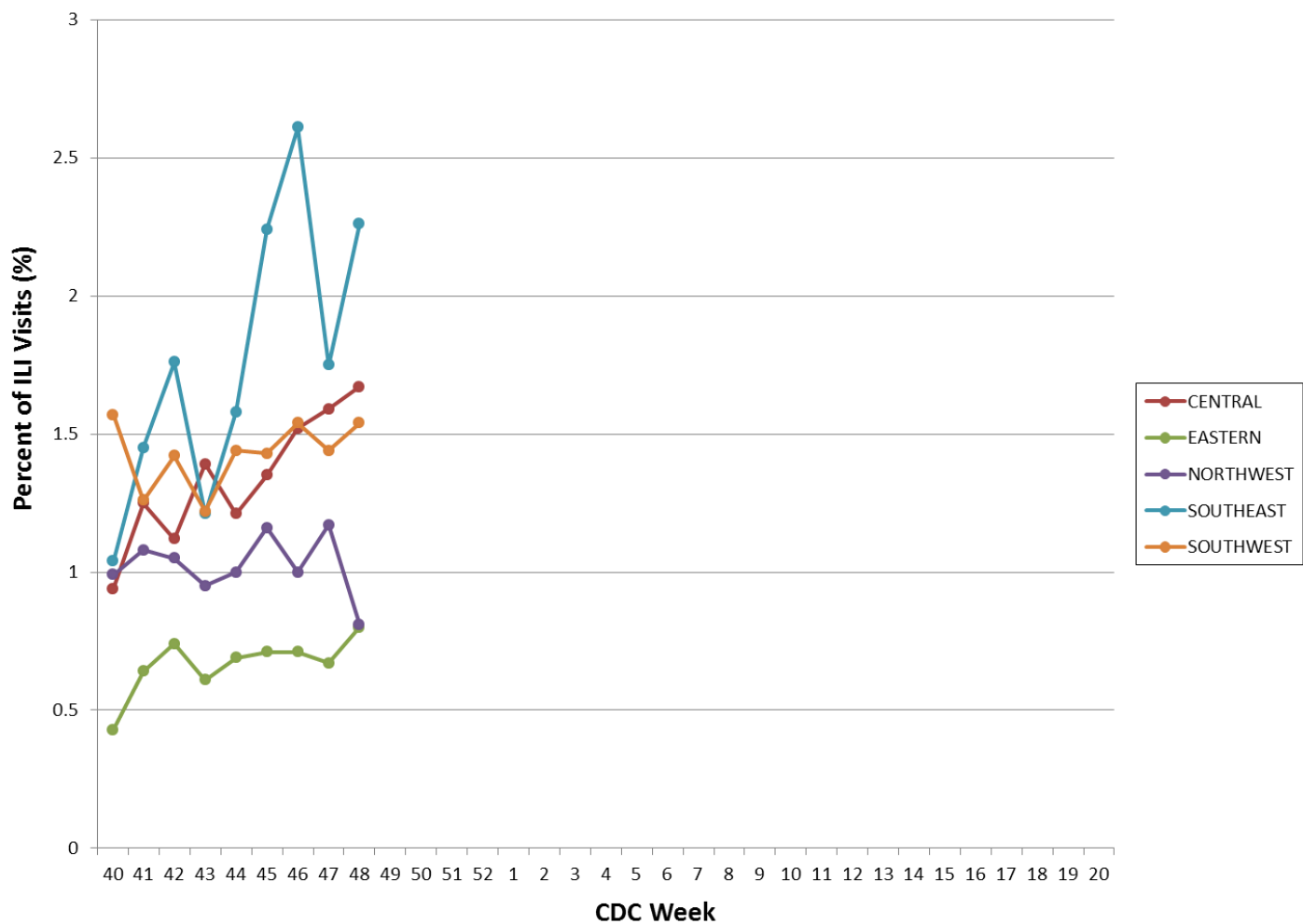
† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending December 5, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.28 | 1.18 | 0.83 | 0.75 | 0.24 | 0.81 |
| Central | 4.23 | 2.52 | 1.71 | 0.88 | 0.87 | 1.67 |
| Eastern | 1.33 | 1.06 | 0.97 | 0.59 | 0.34 | 0.80 |
| Southeast | 10.03 | 4.86 | 1.53 | 0.83 | 0.42 | 2.26 |
| Southwest | 6.59 | 3.20 | 1.06 | 0.52 | 0.37 | 1.54 |
| **Statewide** | **2.99** | **1.87** | **1.05** | **0.67** | **0.39** | **1.11** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending December 5, 2015
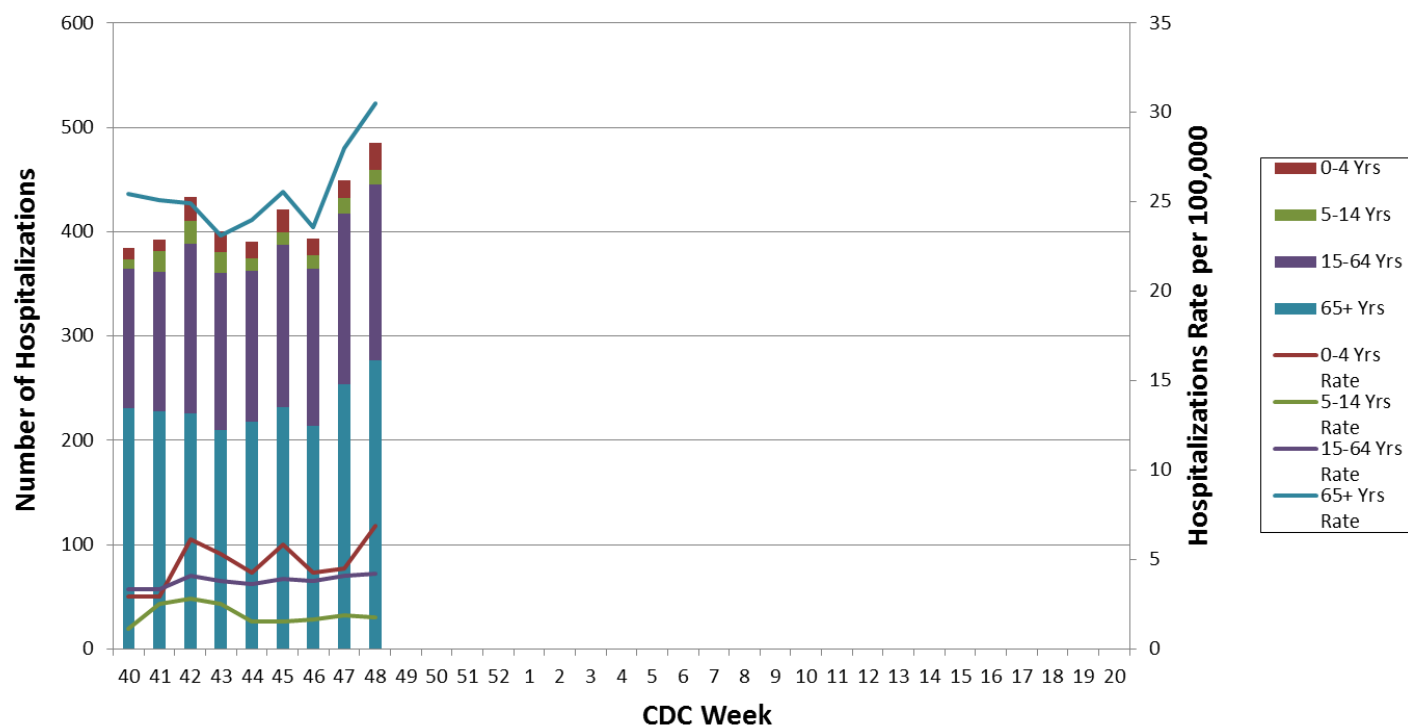


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending December 5, 2015**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=139b7d2b-c25e-4d65-9260-7188e3d11778**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 49: December 6 – December 12, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 410 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 49. The influenza type for reported cases season-to-date includes 49% influenza B, 46% influenza A, and 5% untyped. Fourteen laboratory-positive[3] influenza cases (eleven influenza A, three influenza B) were reported during Week 49. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 49.

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 1.54% and 1.05% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 48, 67 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 594 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* [http://on.mo.gov/1NncUAC](http://on.mo.gov/1NncUAC). *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 49**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

### Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 49 (December 6 – December 12, 2015)

| Influenza Type | Week 47 | Week 48 | Week 49 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 18 | 12 | 11 | 189 |
| Influenza B | 11 | 19 | 3 | 200 |
| Influenza Unknown Or Untyped | 2 | 2 | 0 | 21 |
| Total | 31 | 33 | 14 | 410 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

### Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 49 (December 6 – December 12, 2015)

| Age Group | Week 49 Cases | Week 49 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 3 | 1 | 102 | 27 |
| 05-14 | 1 | 0 | 62 | 8 |
| 15-64 | 8 | 0 | 179 | 5 |
| 65+ | 2 | 0 | 67 | 7 |
| Total | 14 | 0 | 410 | 7 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 49 (December 6 – December 12, 2015)**
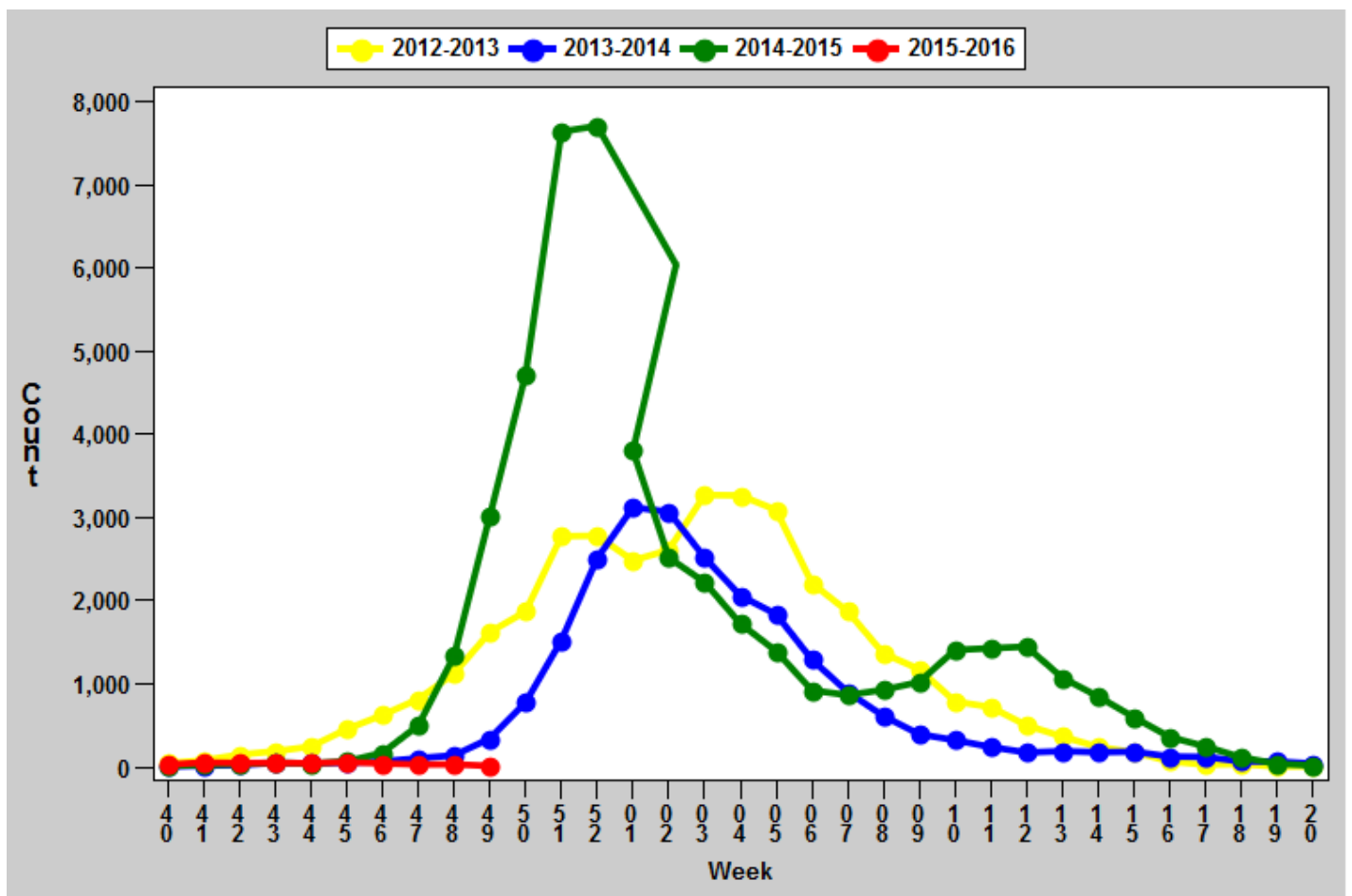
| District | Week 49 Cases | Week 49 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 1 | 0 | 89 | 13 |
| EA | 8 | 0 | 89 | 4 |
| NW | 4 | 0 | 122 | 8 |
| SE | 0 | 0 | 36 | 8 |
| SW | 1 | 0 | 74 | 7 |
| Total | 14 | 0 | 410 | 7 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
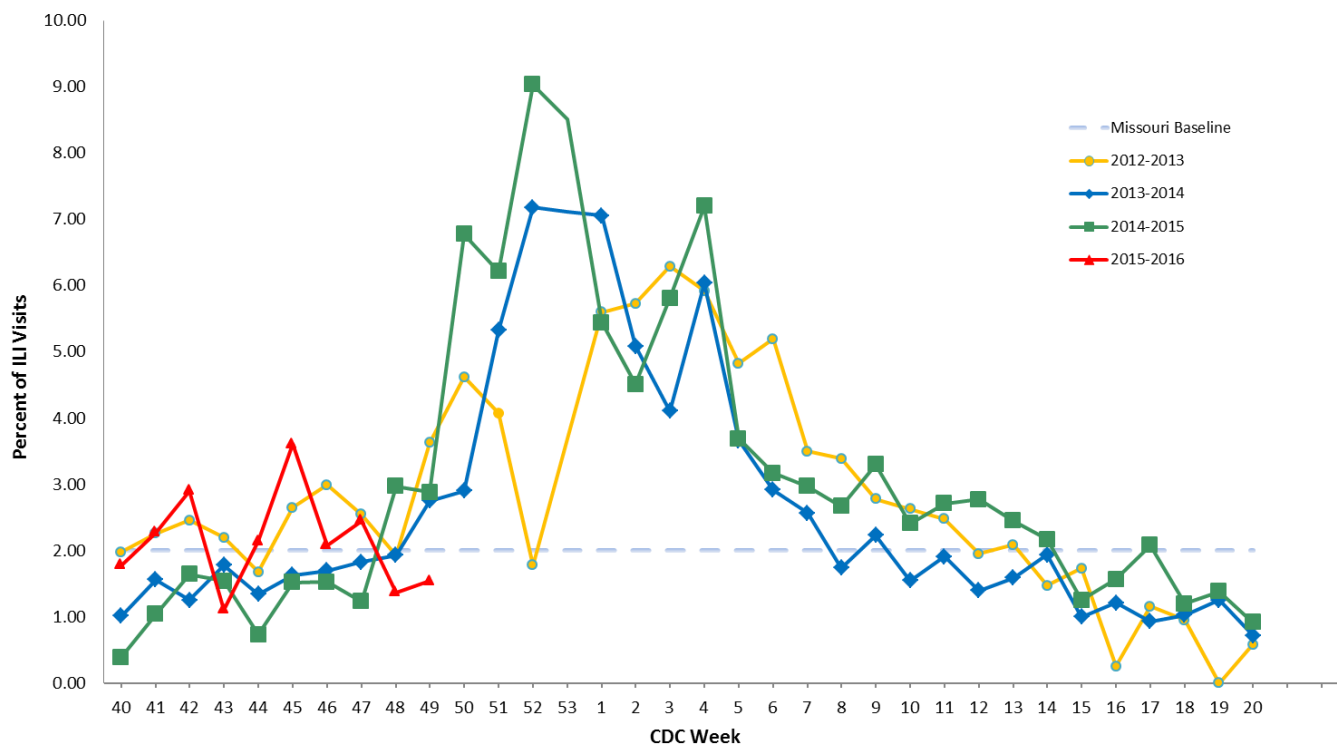[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
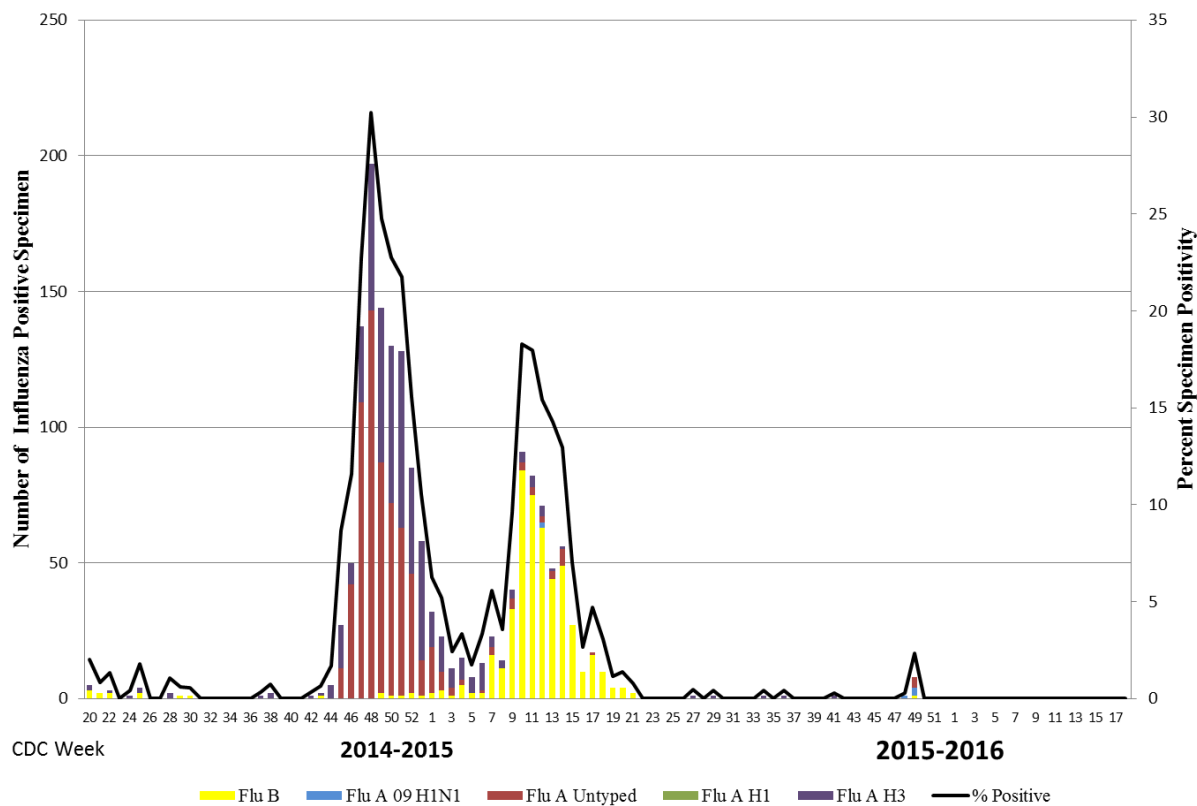*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

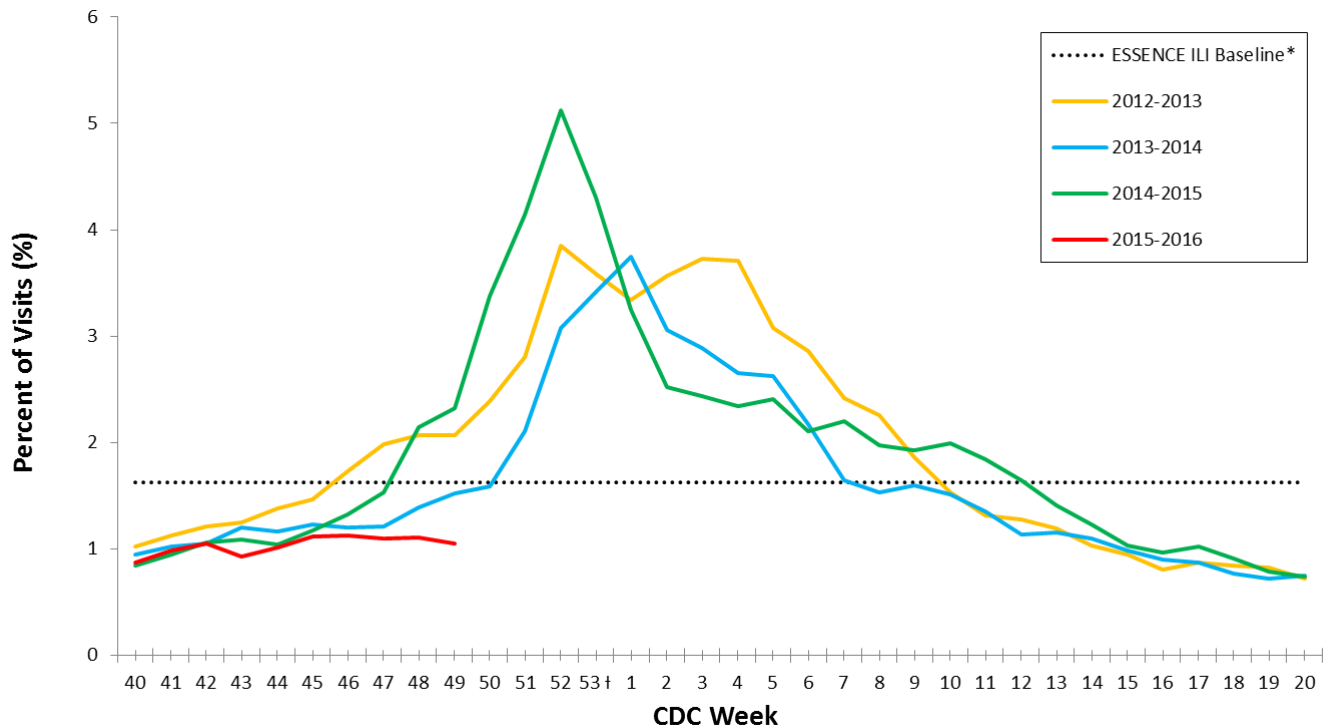## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending December 12, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.63 | 1.63 | 0.71 | 0.79 | 0.33 | 0.87 |
| Central | 3.60 | 1.95 | 1.56 | 1.04 | 1.22 | 1.59 |
| Eastern | 1.90 | 1.38 | 0.89 | 0.64 | 0.26 | 0.85 |
| Southeast | 4.66 | 3.30 | 1.48 | 0.69 | 0.54 | 1.52 |
| Southwest | 4.12 | 2.99 | 0.87 | 0.61 | 0.50 | 1.29 |
| **Statewide** | **2.49** | **1.92** | **0.95** | **0.71** | **0.45** | **1.05** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
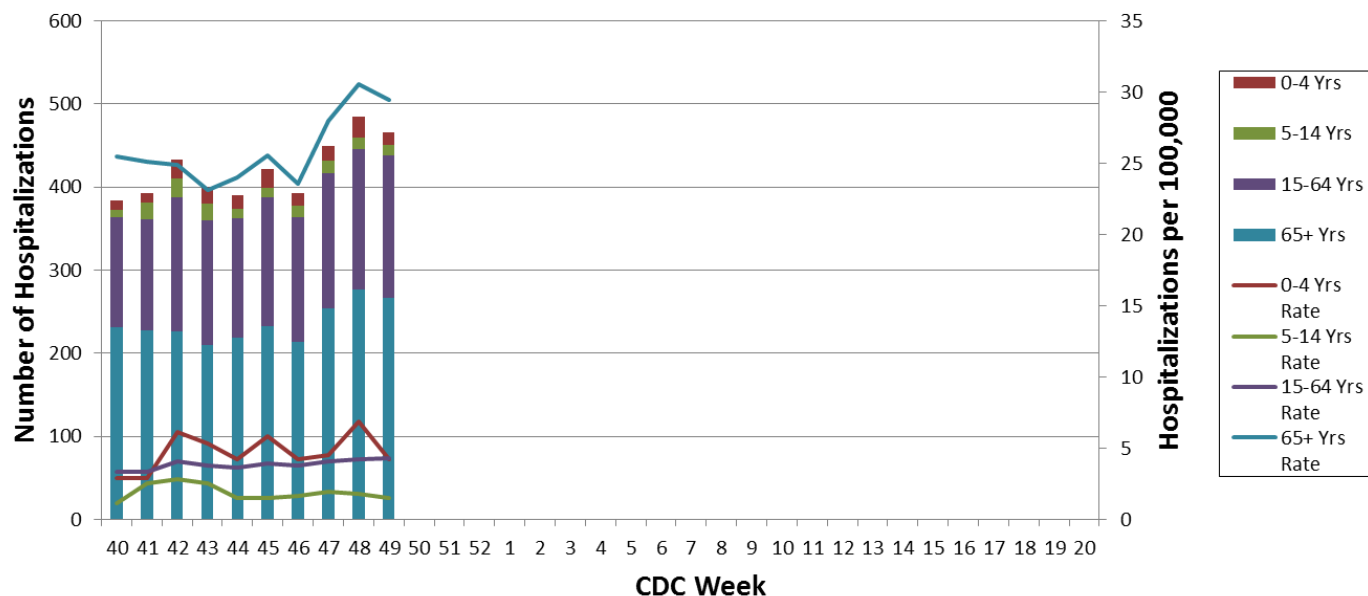
Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
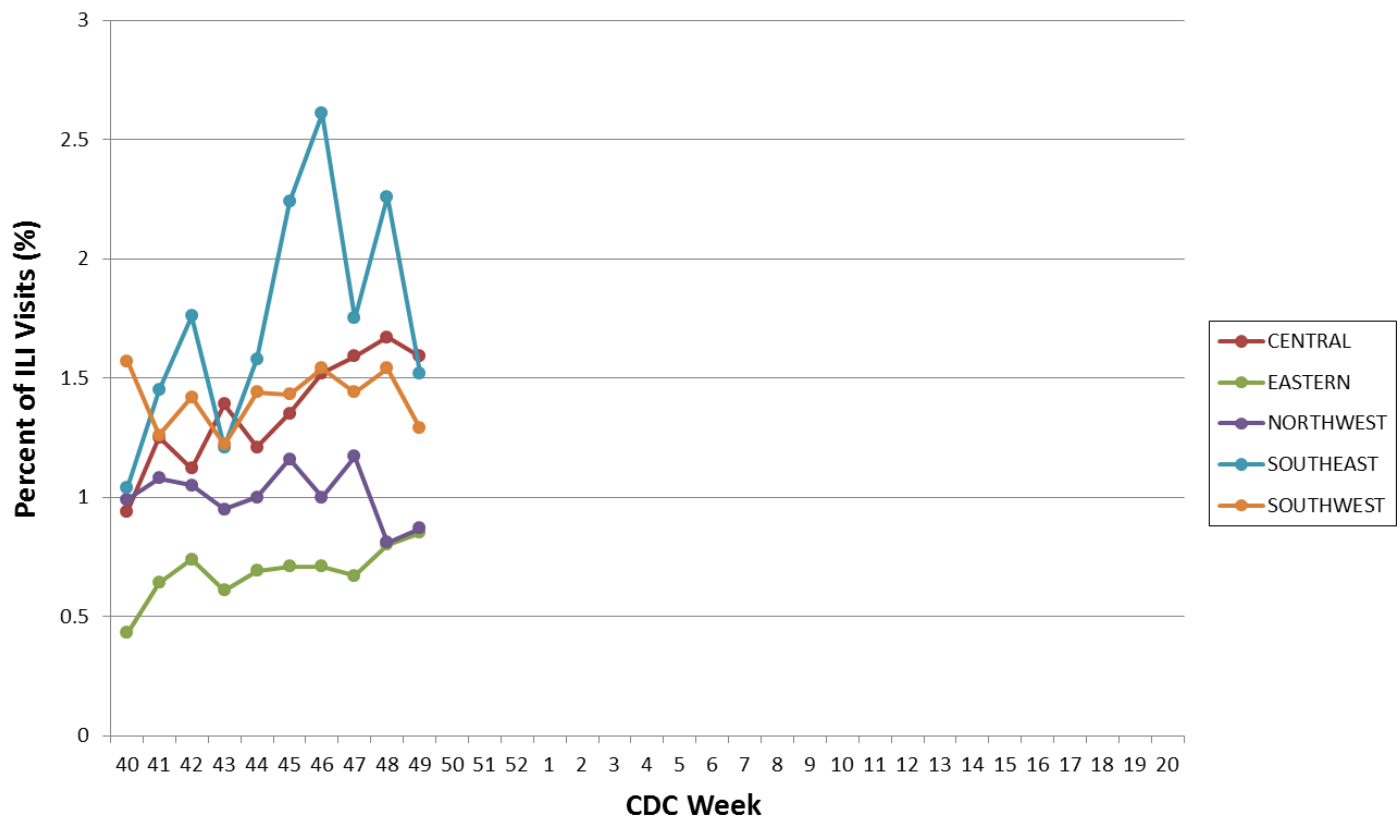
**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending December 12, 2015**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=a36c10bf-c28c-4887-9a08-8fd849375787**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 50: December 13 – December 19, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 524 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 50. The influenza type for reported cases season-to-date includes 47% influenza A, 47% influenza B, and 6% untyped. Thirty laboratory-positive[3] influenza cases (twenty one influenza A, eight influenza B, and 1 untyped) were reported during Week 50. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 50.

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 1.94% and 1.05% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 49, 47 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 641 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1U2tc3t. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 50**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 50 (December 13 – December 19, 2015)**

| Influenza Type | Week 48 | Week 49 | Week 50 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 16 | 39 | 21 | 247 |
| Influenza B | 29 | 21 | 8 | 244 |
| Influenza Unknown Or Untyped | 3 | 10 | 1 | 33 |
| Total | 48 | 70 | 30 | 524 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 50 (December 13 – December 19, 2015)**

| Age Group | Week 50 Cases | Week 50 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 6 | 2 | 118 | 31 |
| 05-14 | 7 | 1 | 79 | 10 |
| 15-64 | 14 | 0 | 241 | 6 |
| 65+ | 3 | 0 | 86 | 9 |
| Total | 30 | 0 | 524 | 9 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 50 (December 13 – December 19, 2015)**
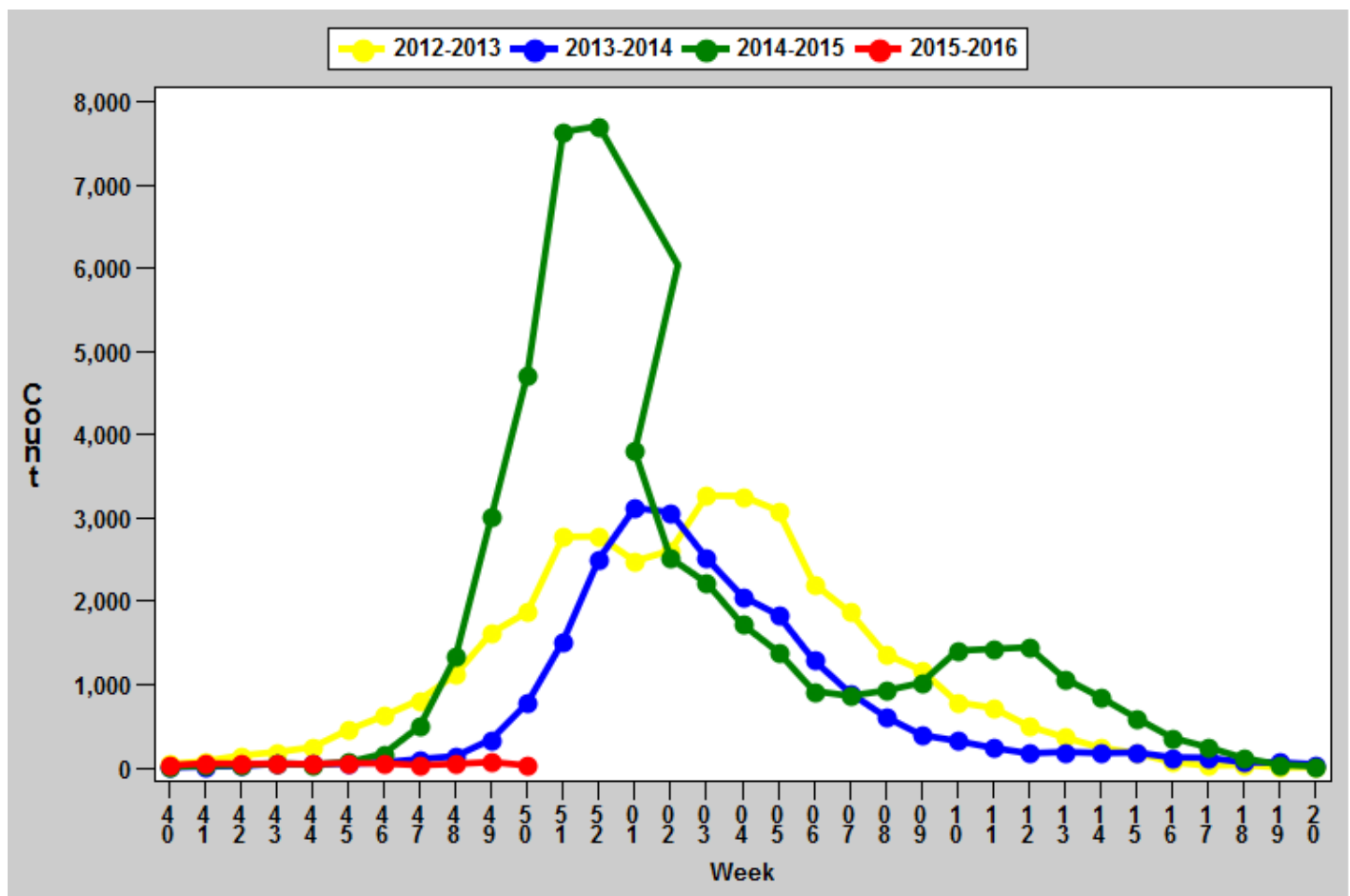
| District | Week 50 Cases | Week 50 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 3 | 0 | 106 | 16 |
| EA | 15 | 1 | 113 | 5 |
| NW | 10 | 1 | 169 | 11 |
| SE | 1 | 0 | 43 | 9 |
| SW | 1 | 0 | 93 | 9 |
| Total | 30 | 0 | 524 | 9 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
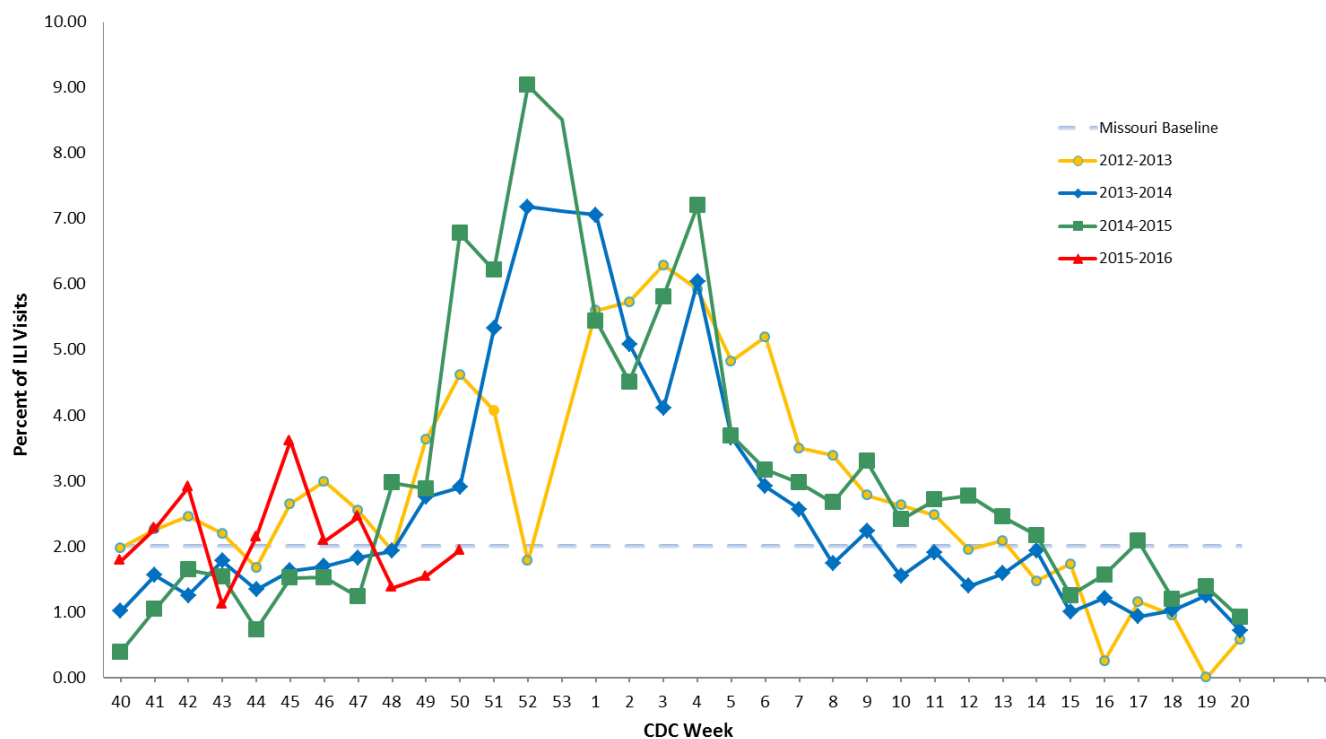[‡] Incidence Rate per 100,000 population

**Graph 1.  Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
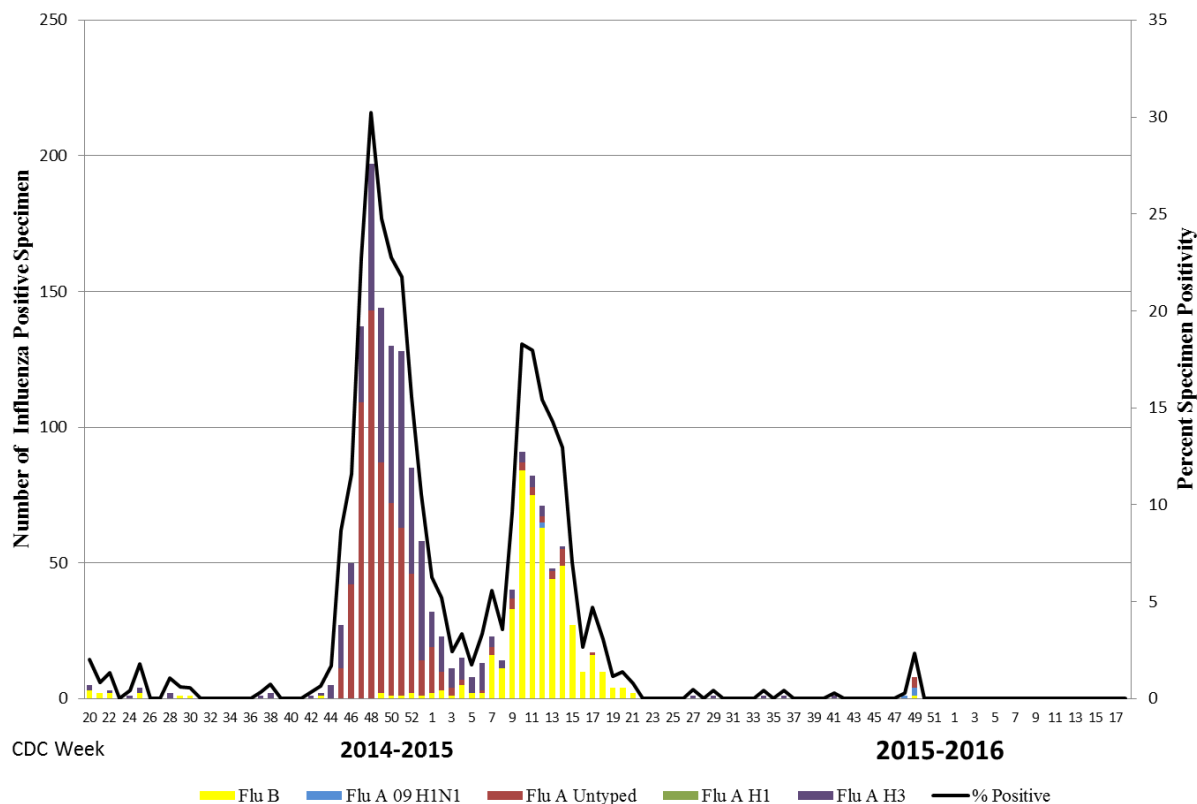*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016\***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

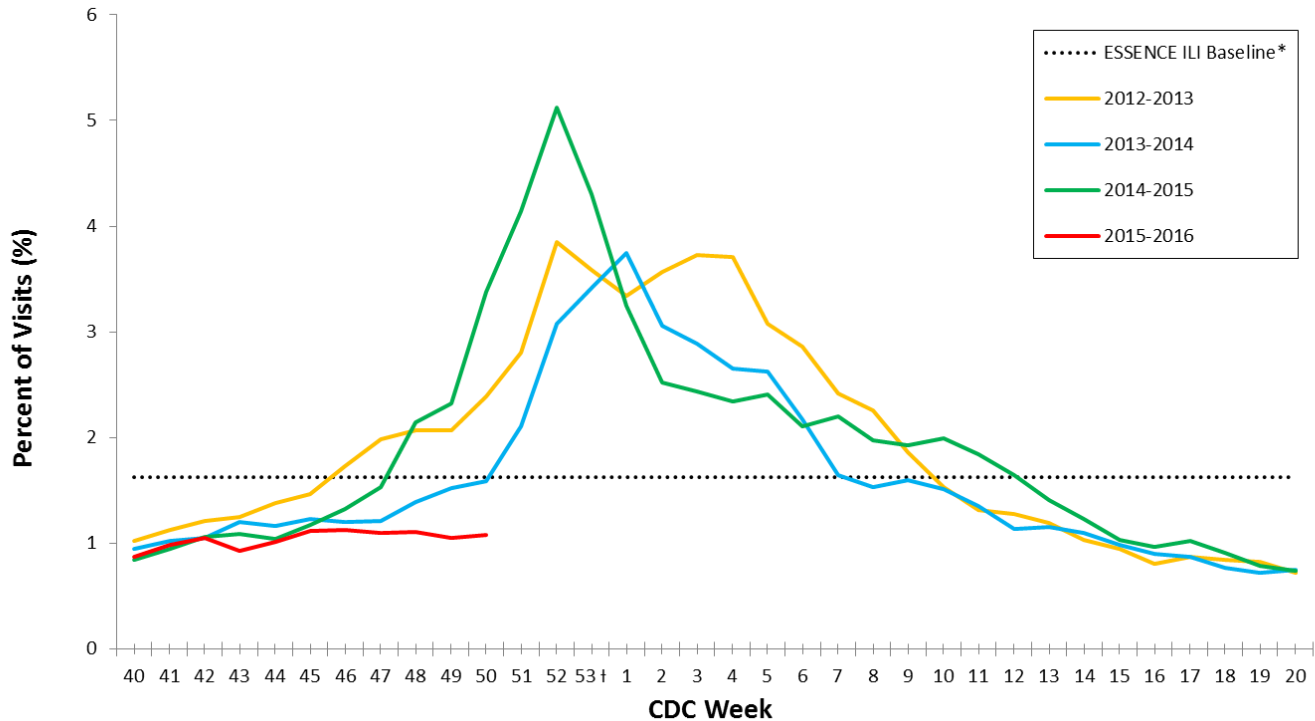**Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
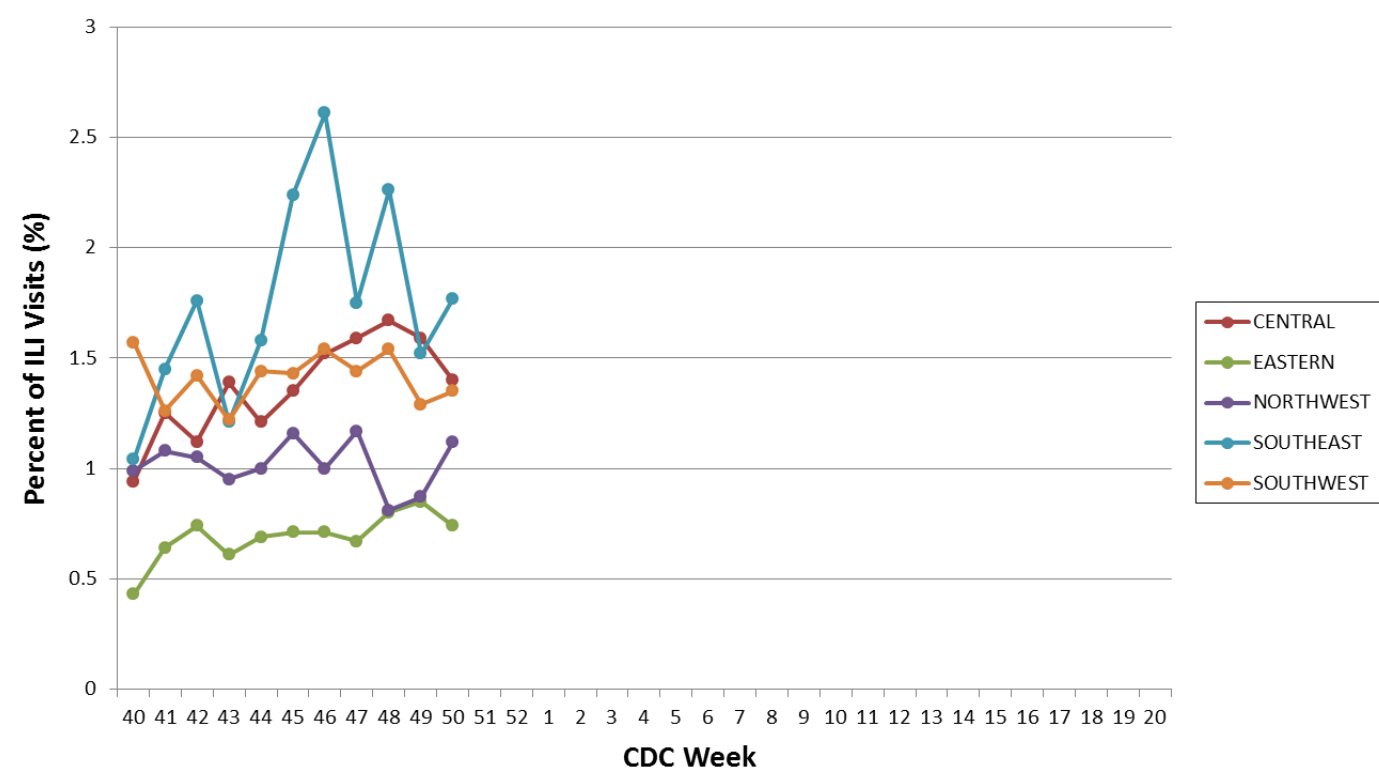†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending December 19, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.73 | 2.65 | 0.86 | 0.50 | 0.43 | 1.12 |
| Central | 5.53 | 2.17 | 0.86 | 0.50 | 0.43 | 1.40 |
| Eastern | 1.78 | 1.68 | 0.78 | 0.34 | 0.11 | 0.74 |
| Southeast | 5.21 | 3.06 | 1.43 | 0.93 | 0.88 | 1.77 |
| Southwest | 3.57 | 4.58 | 0.71 | 0.68 | 0.27 | 1.35 |
| **Statewide** | **2.93** | **2.63** | **0.83** | **0.57** | **0.33** | **1.05** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending December 19, 2015**
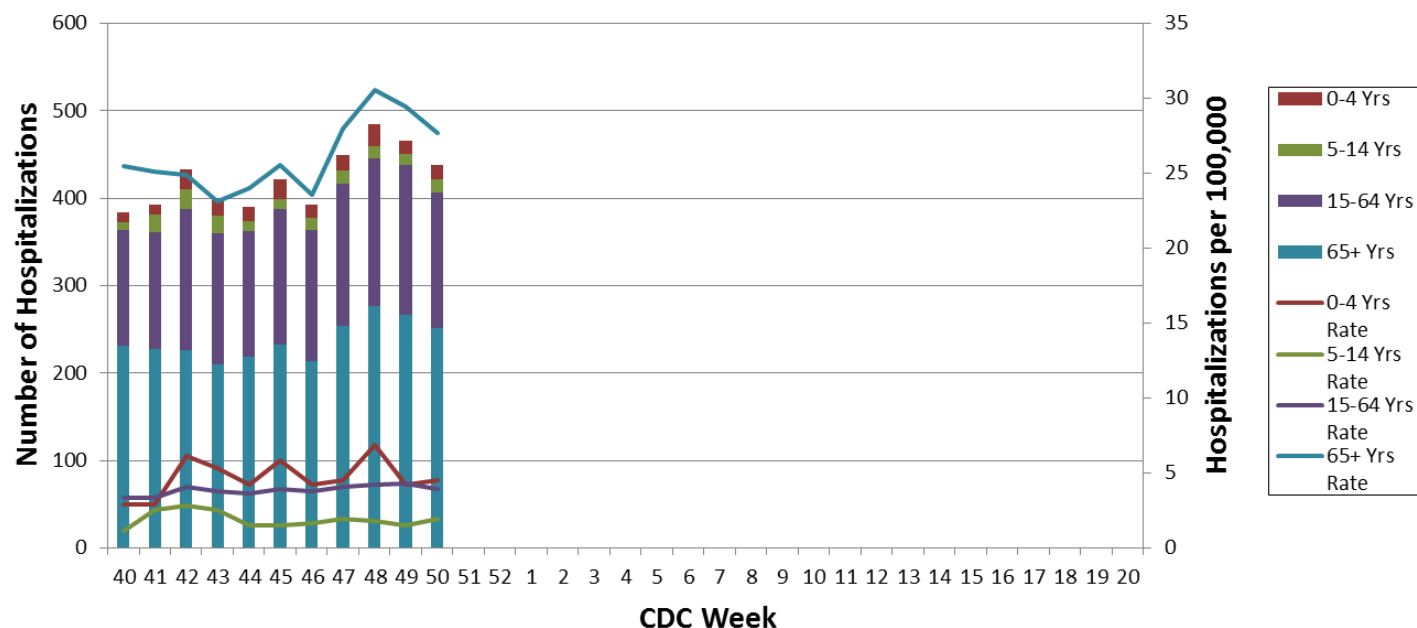


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending December 19, 2015**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=a36c10bf-c28c-4887-9a08-8fd849375787**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 51: December 20 – December 26, 2015

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 600 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 51. The influenza type for reported cases season-to-date includes 50% influenza A, 44% influenza B, and 6% untyped. Twenty four laboratory-positive[3] influenza cases (nineteen influenza A, five influenza B) were reported during Week 51. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 51.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.94% and 1.27% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 50, 74 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 715 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- National influenza activity and surveillance information is prepared by the CDC. The information including a weekly report (FLUVIEW) is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1JdHayZ. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 51**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 51 (December 20 – December 26, 2015)**

| Influenza Type | Week 49 | Week 50 | Week 51 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 46 | 44 | 19 | 297 |
| Influenza B | 22 | 18 | 5 | 263 |
| Influenza Unknown Or Untyped | 12 | 3 | 0 | 40 |
| Total | 80 | 65 | 24 | 600 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 51 (December 20 – December 26, 2015)**

| Age Group | Week 51 Cases | Week 51 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 9 | 2 | 136 | 36 |
| 05-14 | 5 | 1 | 89 | 11 |
| 15-64 | 8 | 0 | 279 | 7 |
| 65+ | 2 | 0 | 96 | 11 |
| Total | 24 | 0 | 600 | 10 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 51 (December 20 – December 26, 2015)**
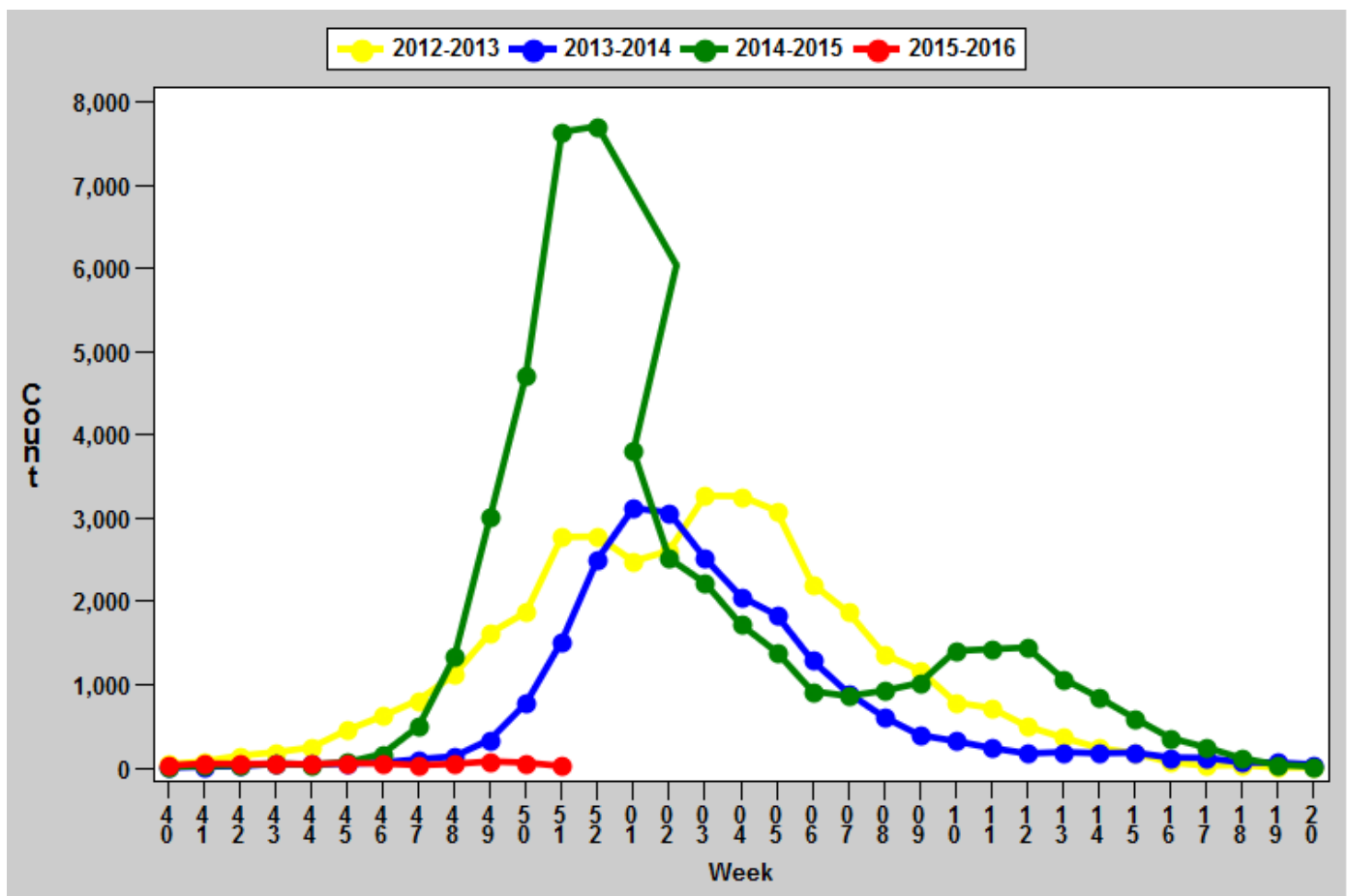
| District | Week 51 Cases | Week 51 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 1 | 0 | 110 | 17 |
| EA | 16 | 1 | 146 | 6 |
| NW | 1 | 0 | 193 | 12 |
| SE | 4 | 1 | 49 | 10 |
| SW | 2 | 0 | 102 | 10 |
| Total | 24 | 0 | 600 | 10 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
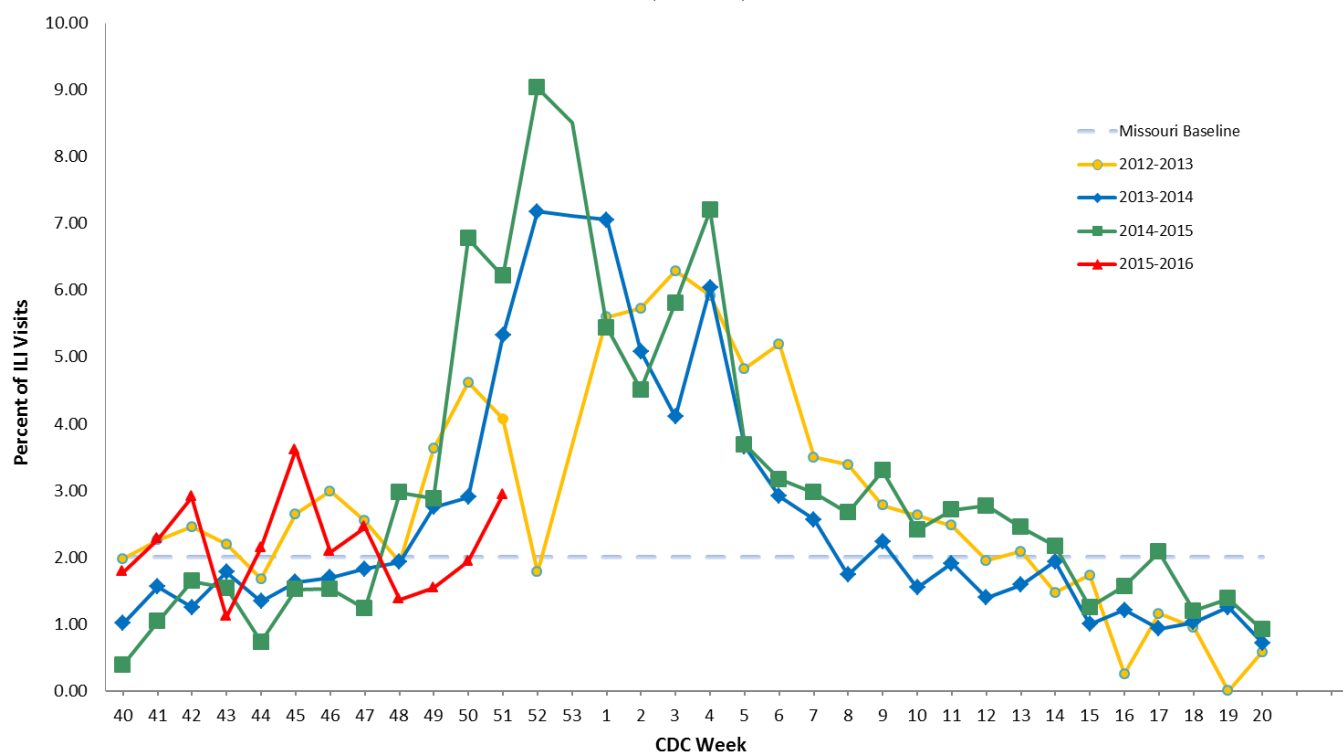[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
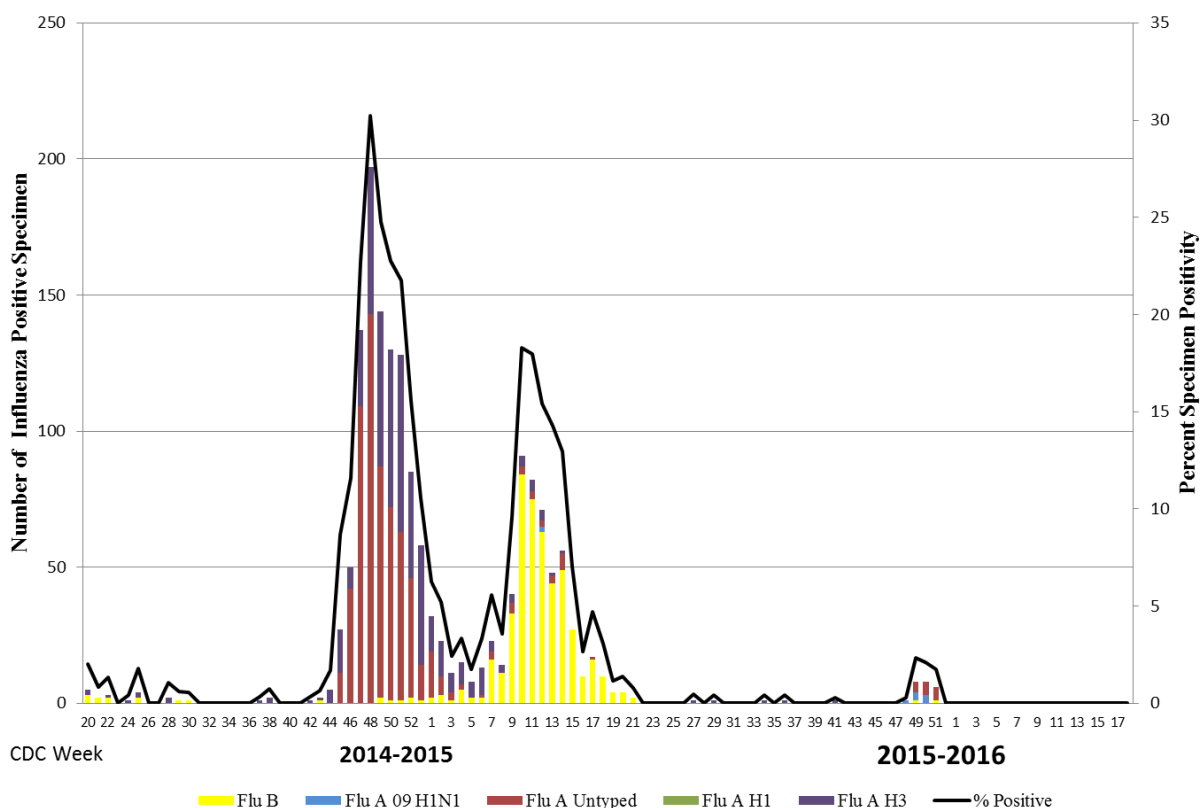*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

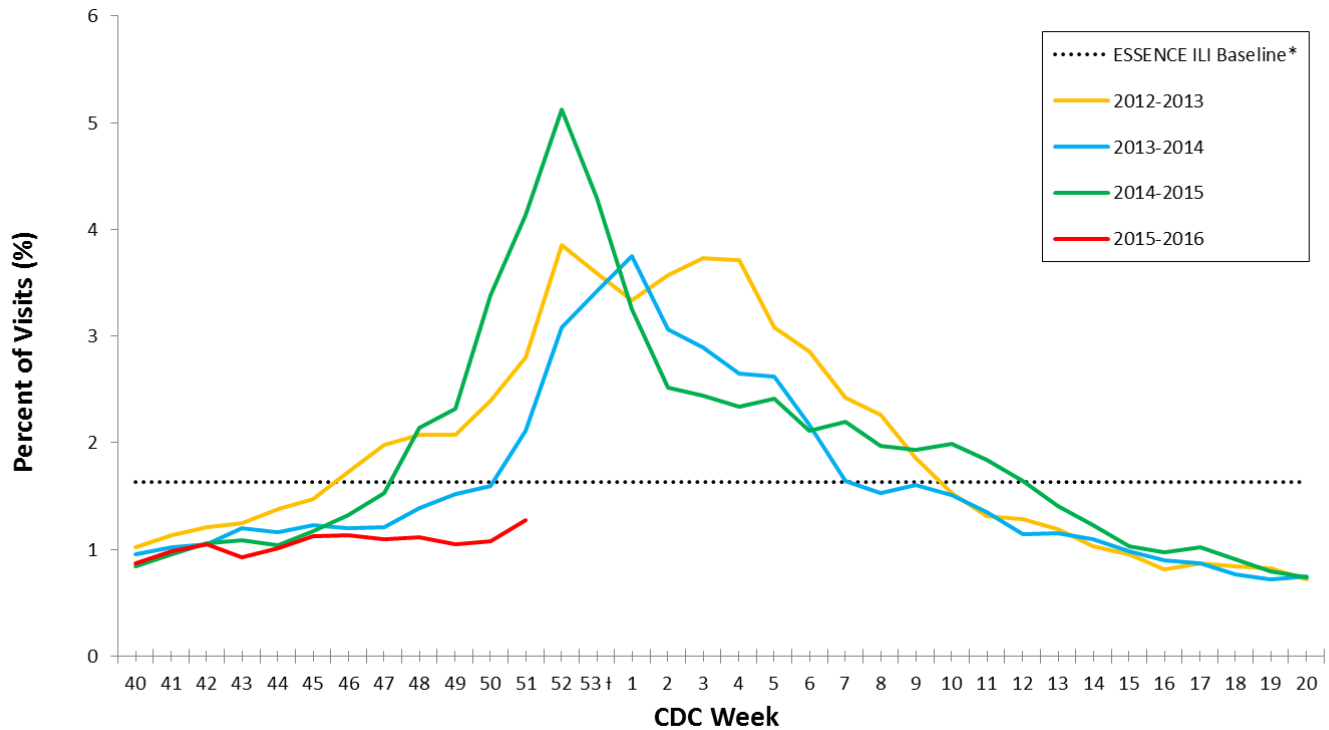**Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
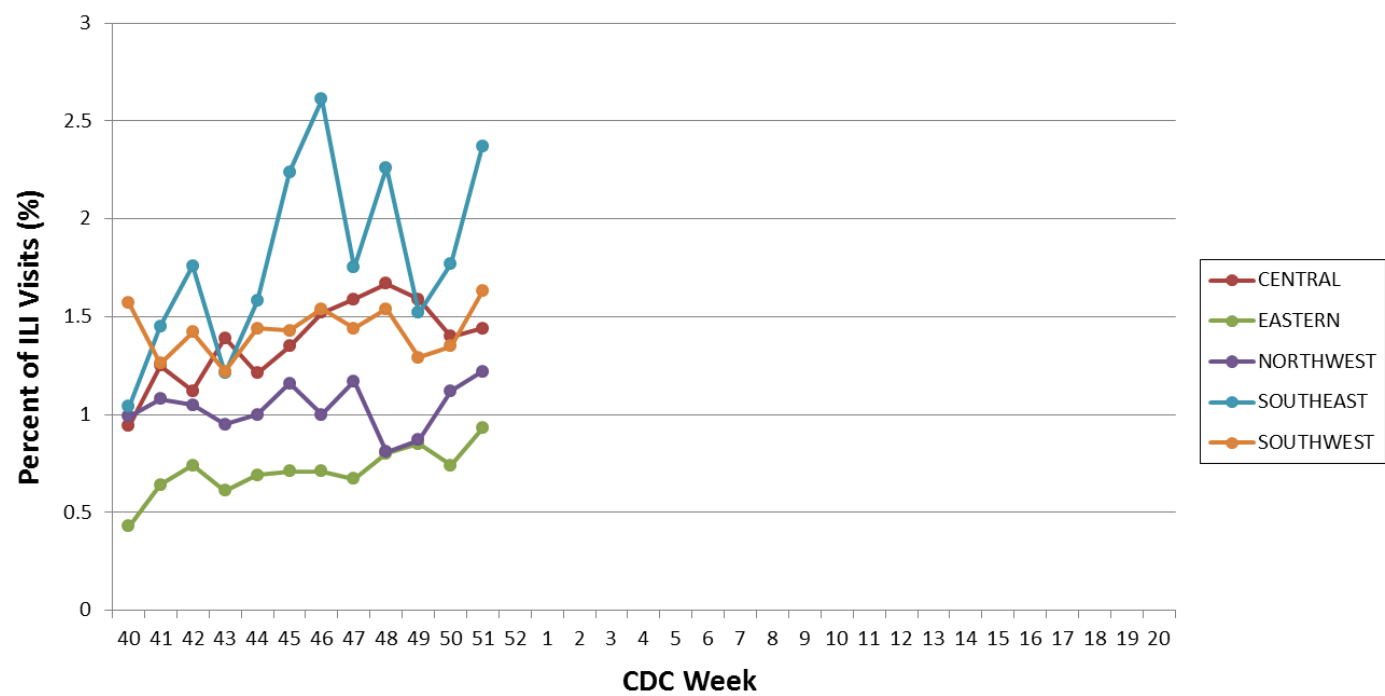
† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending December 26, 2015**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.5 | 2.43 | 1.08 | 0.79 | 0.44 | 1.22 |
| Central | 3.84 | 2.74 | 1.19 | 0.93 | 0.74 | 1.44 |
| Eastern | 1.96 | 1.8 | 0.9 | 0.78 | 0.24 | 0.93 |
| Southeast | 7.69 | 5.14 | 1.36 | 1.16 | 1.36 | 2.37 |
| Southwest | 5.45 | 4.97 | 0.77 | 0.57 | 0.77 | 1.63 |
| **Statewide** | **3.24** | **2.88** | **0.99** | **0.78** | **0.52** | **1.27** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending December 26, 2015**
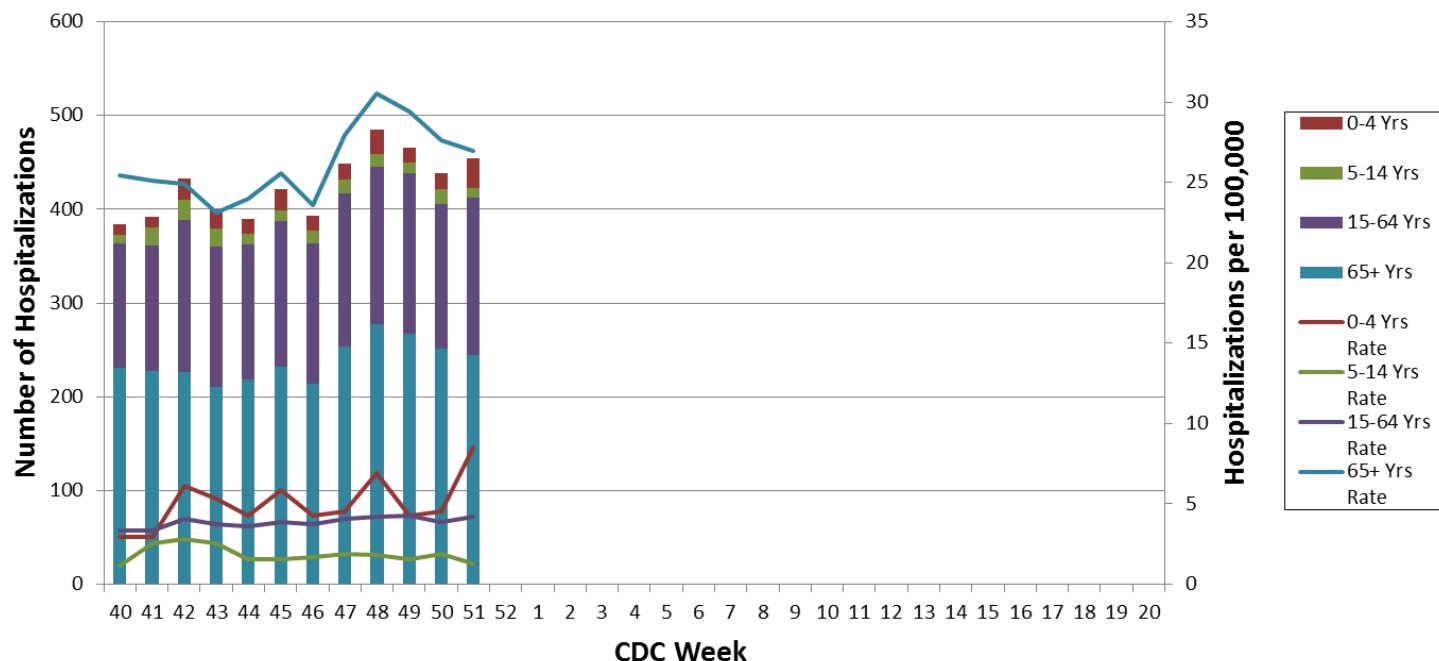


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending December 26, 2015**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=211fbfc0-d9f3-44bf-a4c7-cbcf382d2a83**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 52: December 27 – January 2, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 738 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 52. The influenza type for reported cases season-to-date includes 54% influenza A, 39% influenza B, and 7% untyped. Thirty-six laboratory-positive[3] influenza cases (29 influenza A, 3 influenza B, and 4 untyped) were reported during Week 52. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 52.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 2 influenza isolates so far this influenza season from Missouri. Both viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.32% and 1.30% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 51, 30 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 745 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased slightly in the U.S. during week 51. Influenza A was the most frequently identified influenza virus type nationally, to date, this influenza season. The percentage of respiratory specimens testing positive for influenza in clinical laboratories was low. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1n3a5Mn. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 52**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 52 (December 27 – January 2, 2016)**

| Influenza Type | Week 50 | Week 51 | Week 52 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 49 | 50 | 29 | 399 |
| Influenza B | 21 | 22 | 3 | 289 |
| Influenza Unknown Or Untyped | 3 | 3 | 4 | 50 |
| Total | 73 | 75 | 36 | 738 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 52 (December 27 – January 2, 2016)**

| Age Group | Week 52 Cases | Week 52 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 10 | 3 | 159 | 42 |
| 05-14 | 1 | 0 | 94 | 12 |
| 15-64 | 19 | 0 | 363 | 9 |
| 65+ | 6 | 1 | 122 | 13 |
| Total | 36 | 1 | 738 | 12 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 52 (December 27 – January 2, 2016)**
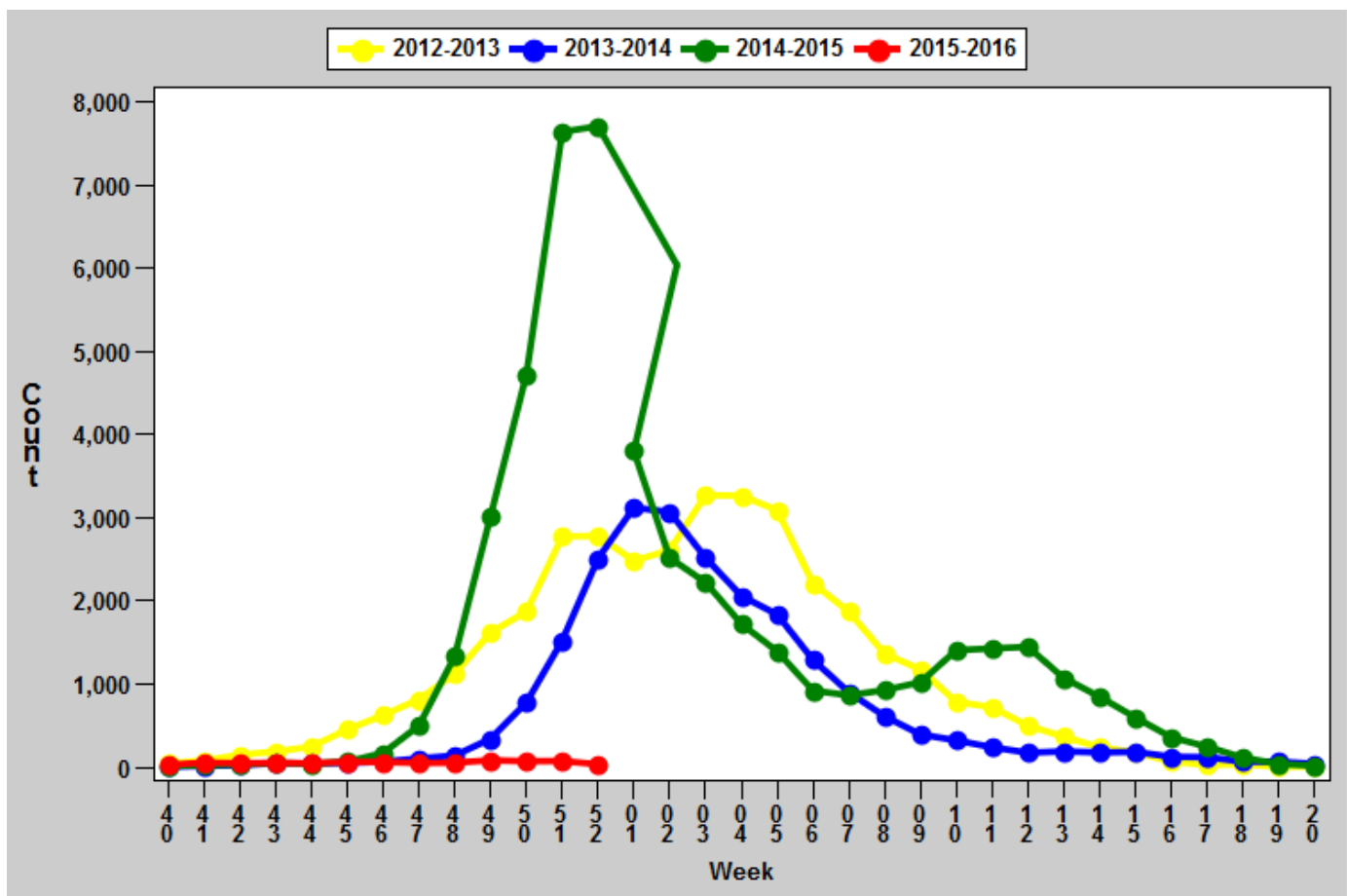
| District | Week 52 Cases | Week 52 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 2 | 0 | 120 | 18 |
| EA | 27 | 1 | 234 | 10 |
| NW | 7 | 0 | 219 | 14 |
| SE | 0 | 0 | 49 | 10 |
| SW | 0 | 0 | 116 | 11 |
| Total | 36 | 1 | 738 | 12 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
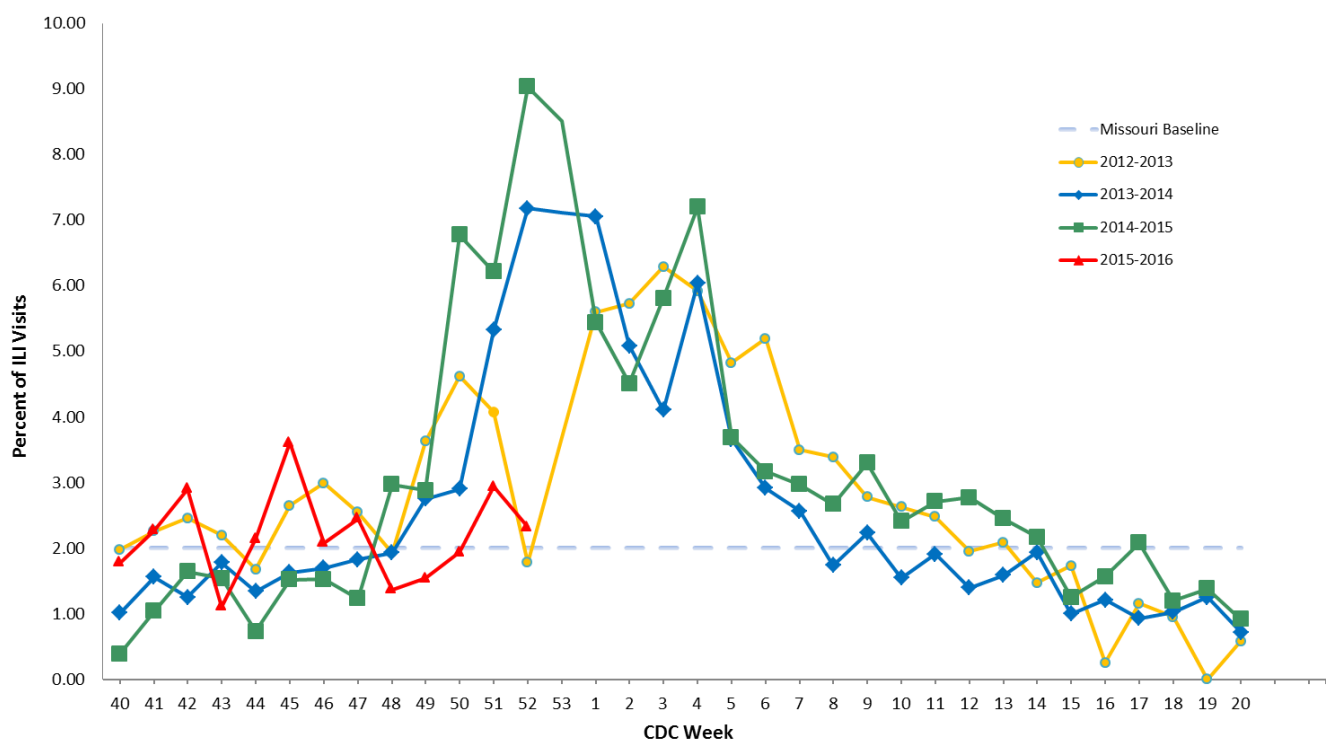
[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
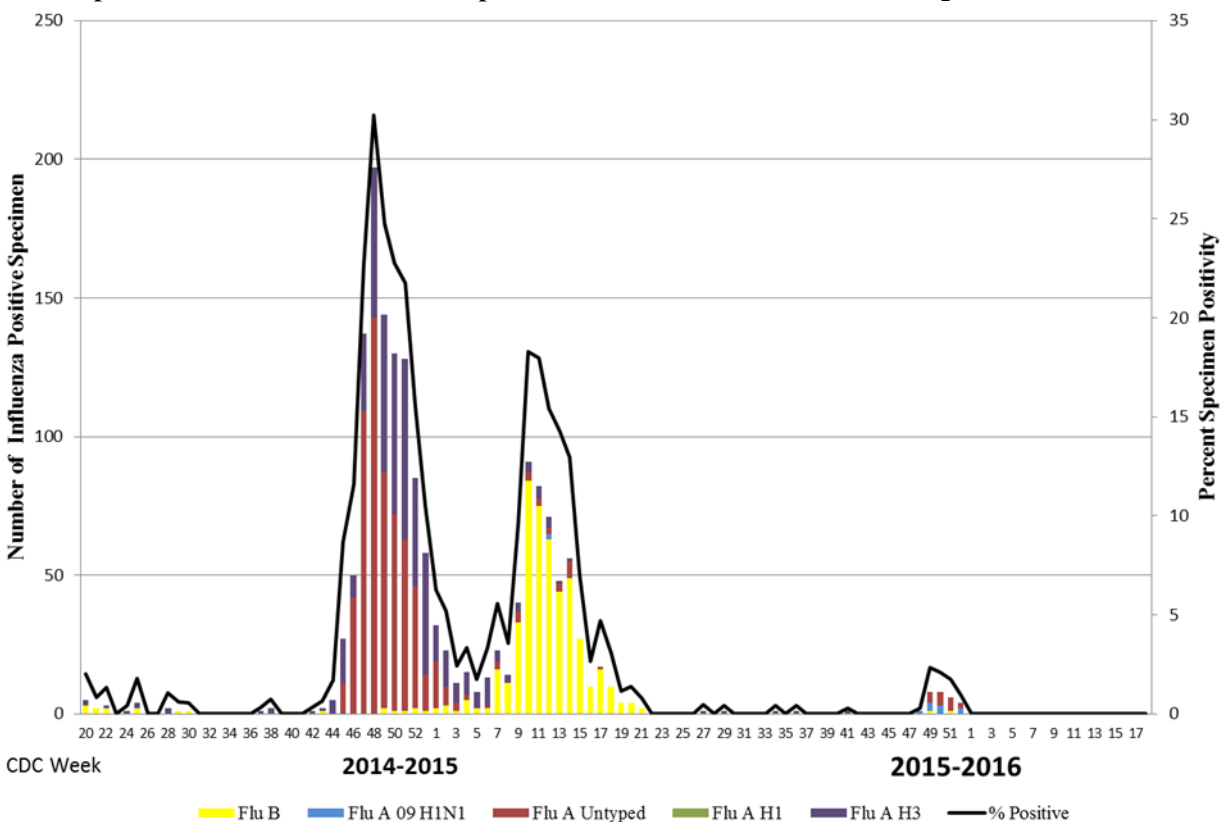
*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

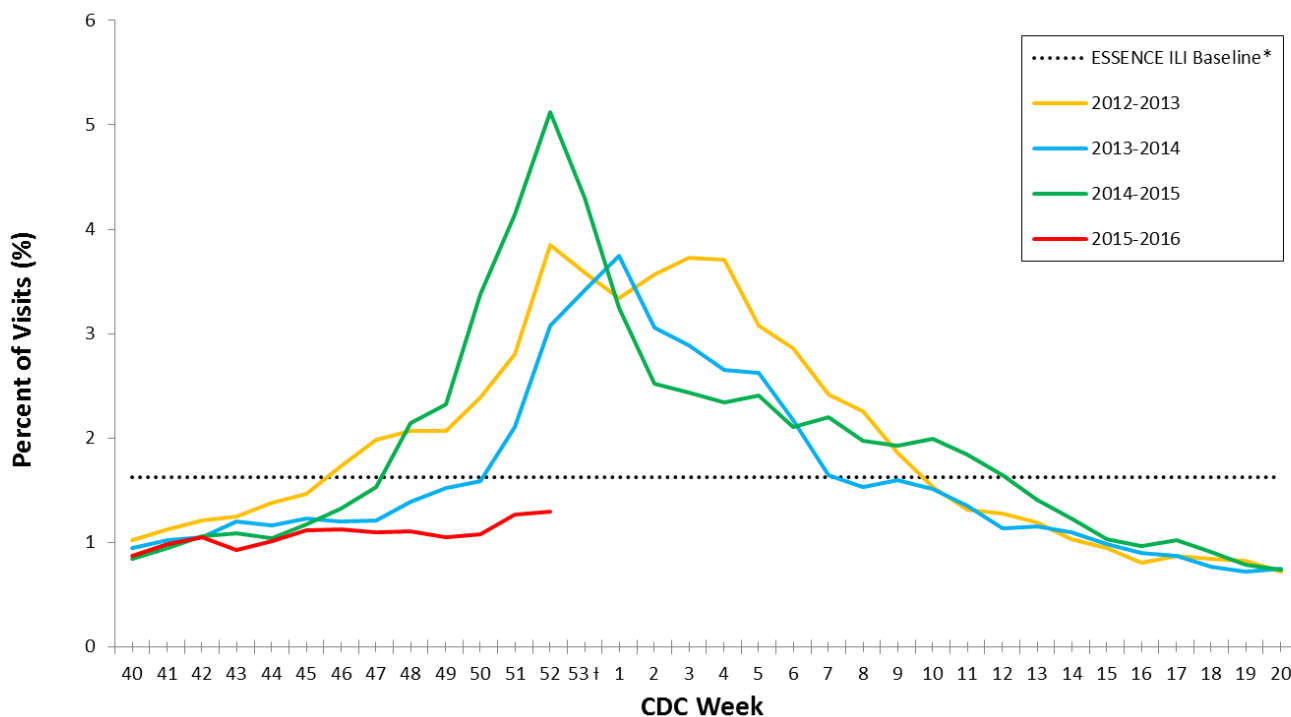**Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
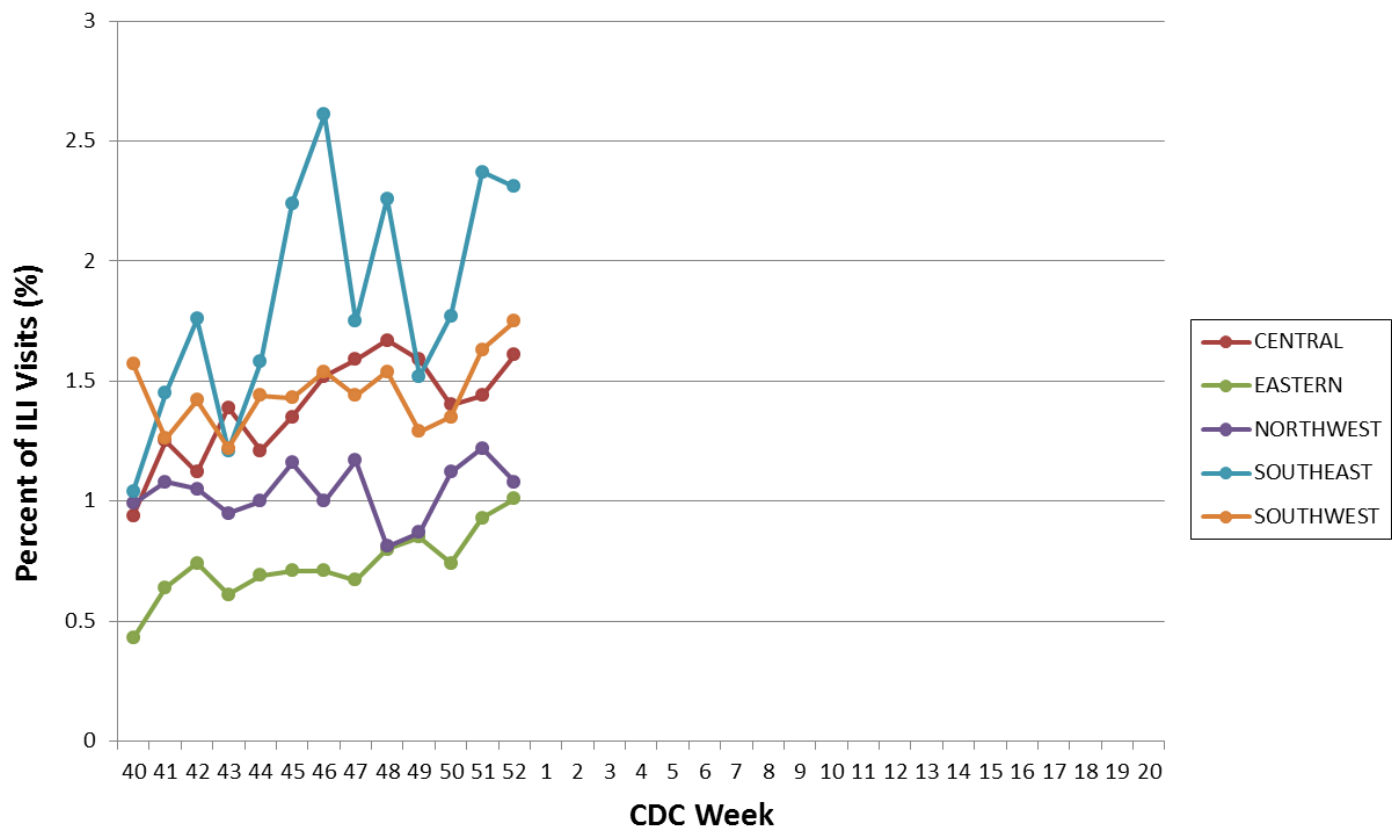
† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending January 2, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.22 | 1.73 | 0.82 | 0.93 | 0.78 | 1.08 |
| Central | 3.74 | 2.34 | 1.40 | 0.91 | 1.57 | 1.61 |
| Eastern | 2.11 | 1.63 | 0.86 | 1.03 | 0.47 | 1.01 |
| Southeast | 8.31 | 4.92 | 1.58 | 0.79 | 1.56 | 2.31 |
| Southwest | 6.08 | 4.59 | 0.94 | 0.95 | 0.76 | 1.75 |
| **Statewide** | **3.29** | **2.49** | **0.96** | **0.96** | **0.80** | **1.30** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending January 2, 2016
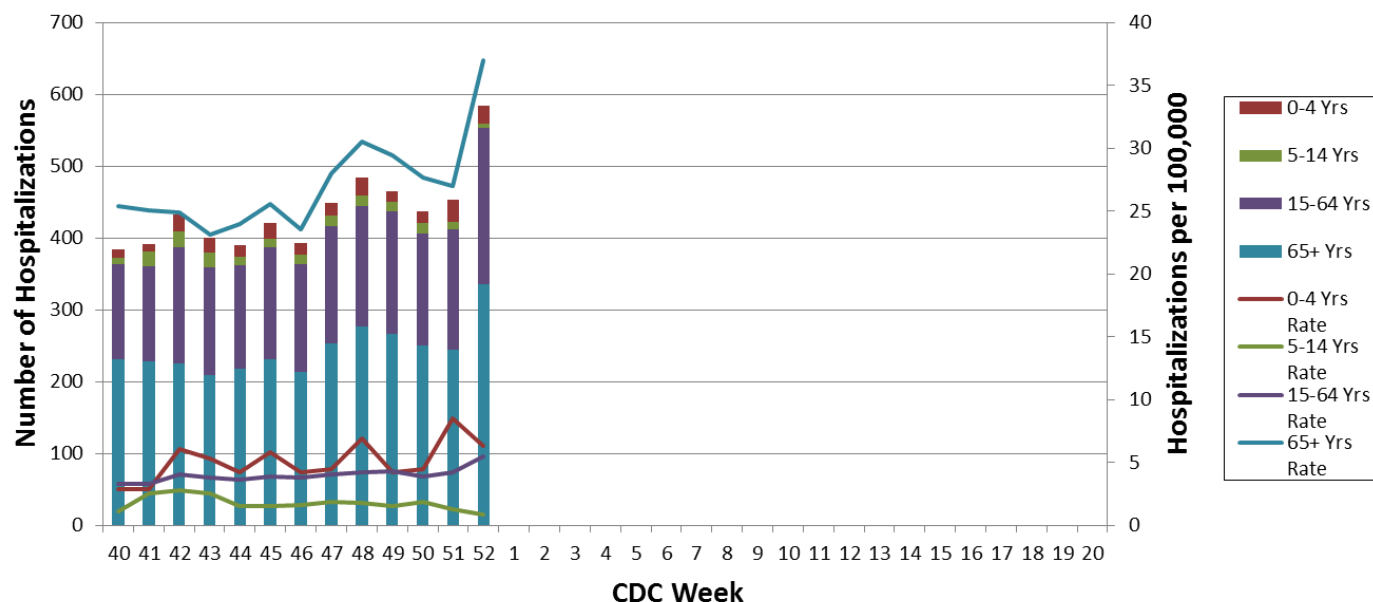


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending January 2, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

## Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=211fbfc0-d9f3-44bf-a4c7-cbcf382d2a83**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 1: January 3 – January 9, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 853 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 1. The influenza type for reported cases season-to-date includes 55% influenza A, 38% influenza B, and 7% untyped. Thirty-four laboratory-positive[3] influenza cases (26 influenza A, 8 influenza B) were reported during Week 1. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 1.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized two influenza isolates so far this influenza season from Missouri. Both viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 1.93% and 1.11% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 52, 50 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 795 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased slightly in the U.S. during week 52. Influenza A was the most frequently identified influenza virus type nationally, to date, this influenza season. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^oF$ [$37.8^oC$] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1UMf2UG. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 1**

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**

- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 1 (January 3 – January 9, 2016)**

| Influenza Type | Week 51 | Week 52 | Week 1 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 54 | 56 | 26 | 472 |
| Influenza B | 26 | 17 | 8 | 326 |
| Influenza Unknown Or Untyped | 5 | 6 | 0 | 55 |
| Total | 85 | 79 | 34 | 853 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 1 (January 3 – January 9, 2016)**

| Age Group | Week 1 Cases | Week 1 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 8 | 2 | 192 | 51 |
| 05-14 | 4 | 1 | 107 | 14 |
| 15-64 | 16 | 0 | 416 | 10 |
| 65+ | 6 | 1 | 138 | 15 |
| Total | 34 | 1 | 853 | 14 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 1 (January 3 – January 9, 2016)**
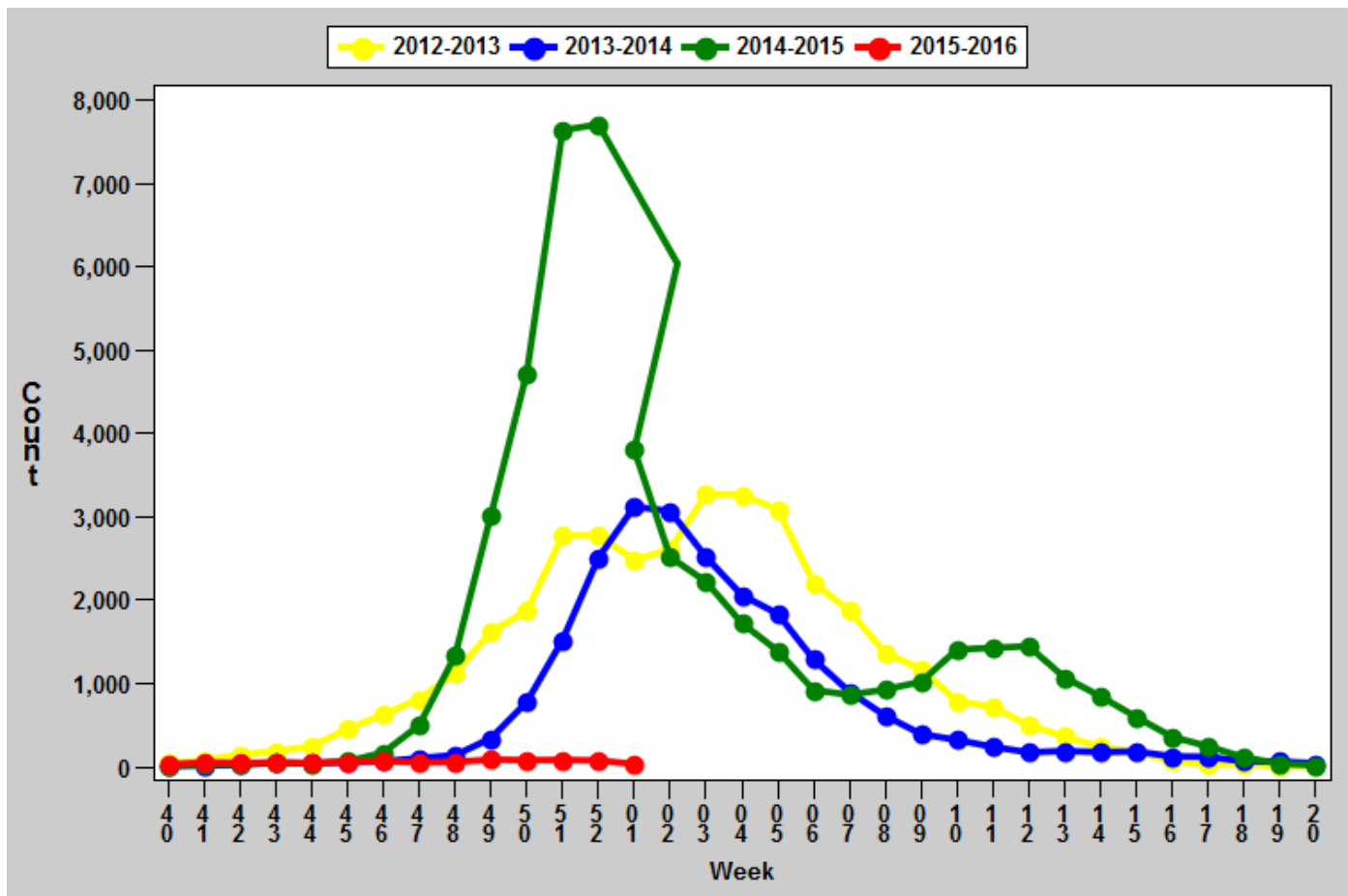
| District | Week 1 Cases | Week 1 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|----------|--------------|----------------|----------------------------|-----------------------------------|
| CE | 1 | 0 | 127 | 19 |
| EA | 24 | 1 | 272 | 12 |
| NW | 5 | 0 | 260 | 16 |
| SE | 4 | 1 | 64 | 13 |
| SW | 0 | 0 | 130 | 12 |
| Total | 34 | 1 | 853 | 14 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
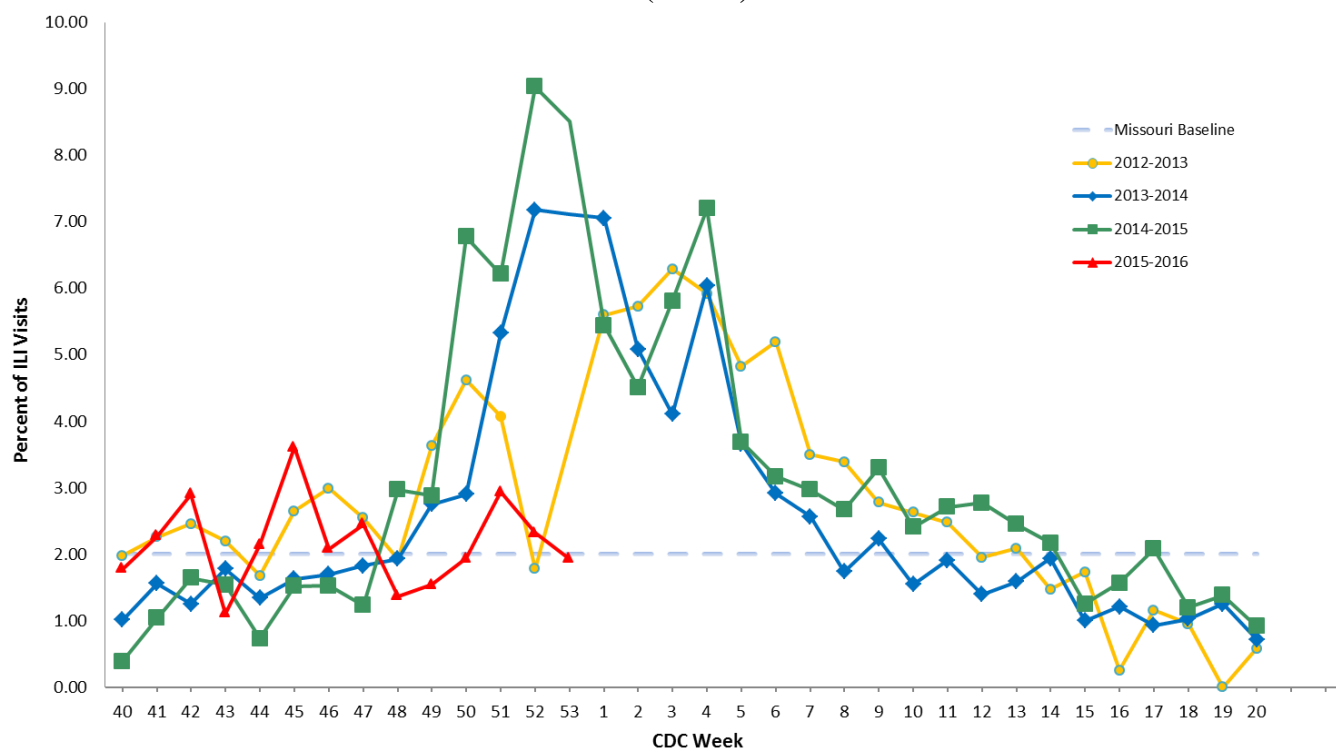[‡] Incidence Rate per 100,000 population

**Graph 1.  Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
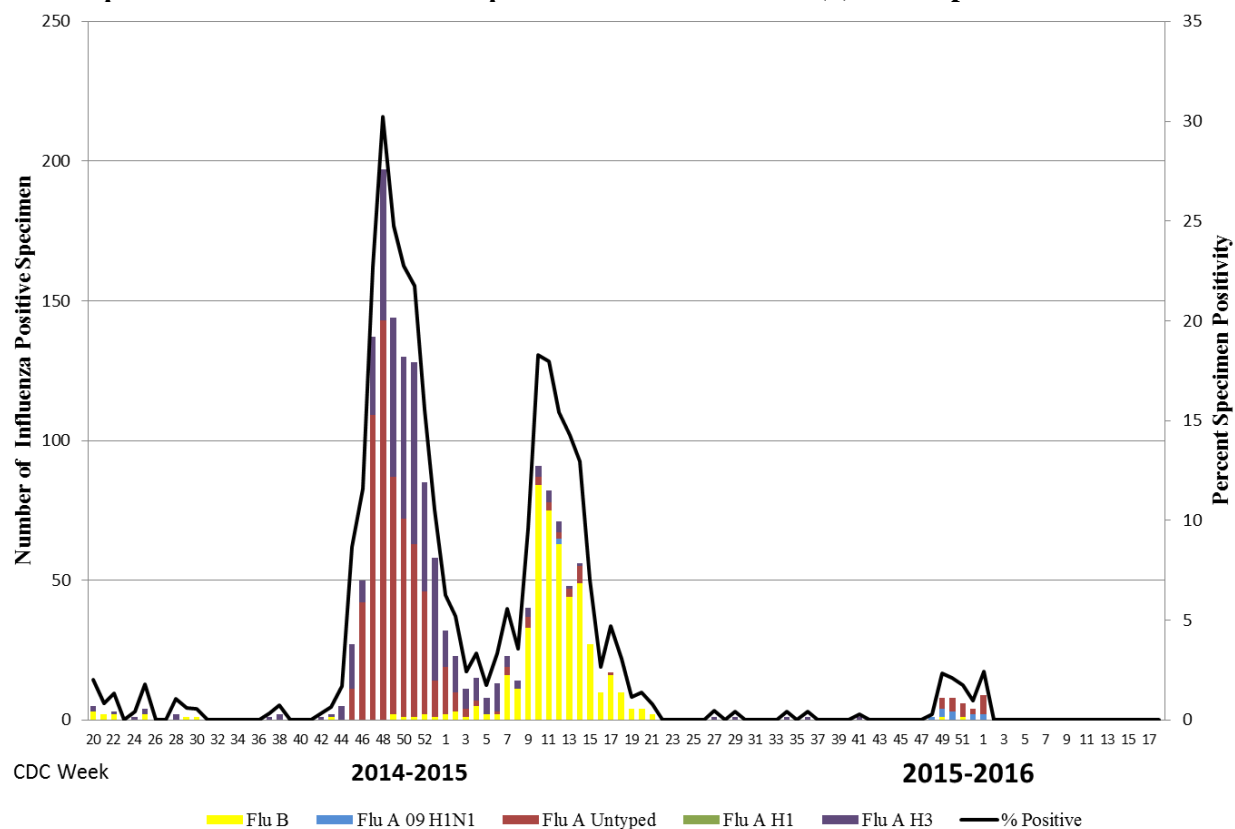*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

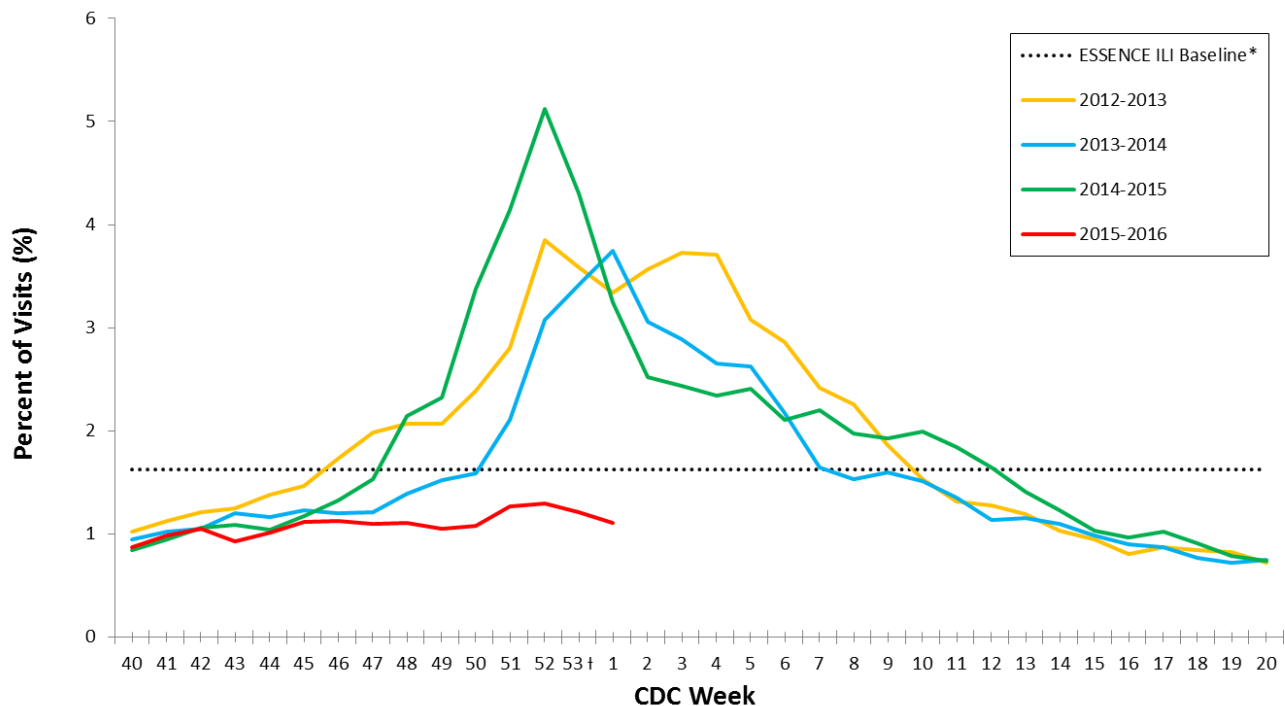## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

## Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
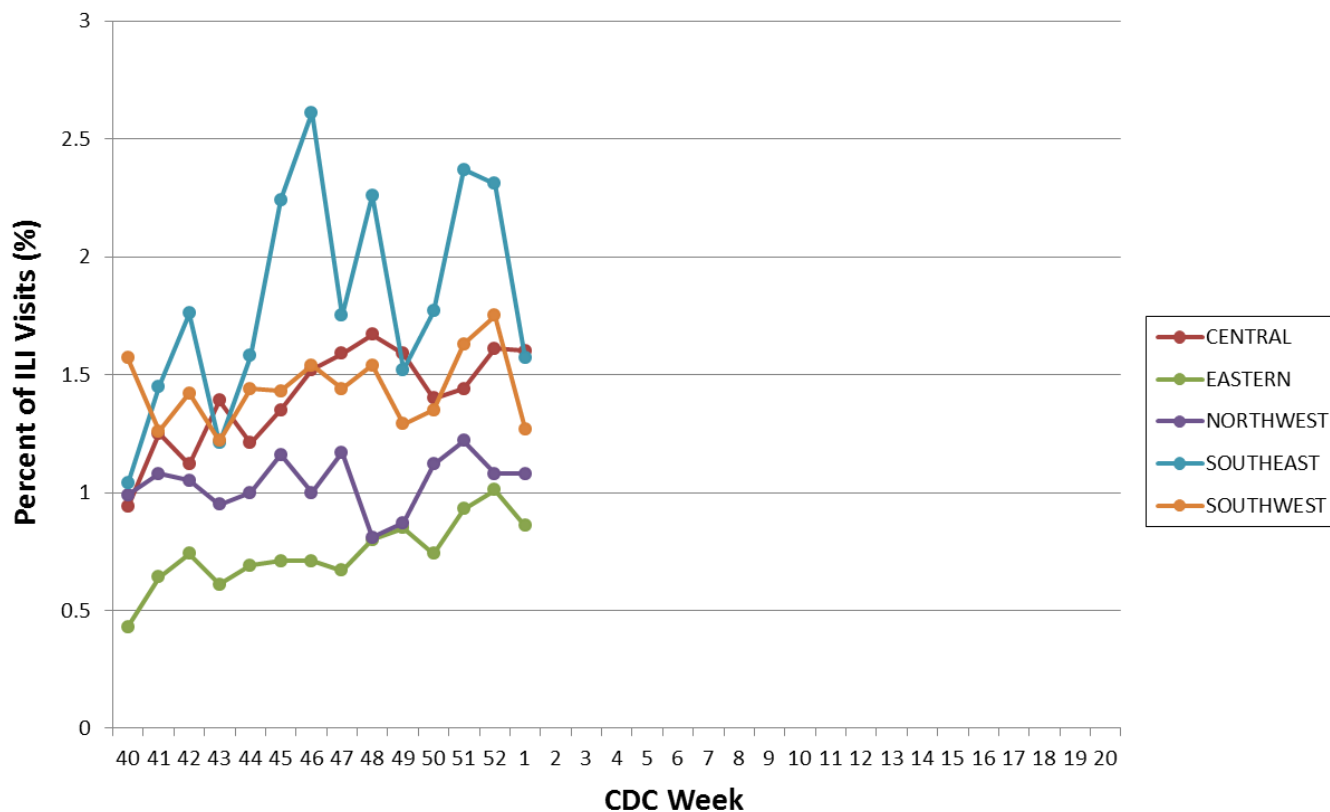†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

## Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending January 9, 2016

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.69 | 1.39 | 1.06 | 1.23 | 0.28 | 1.08 |
| Central | 4.46 | 2.25 | 1.49 | 1.27 | 0.74 | 1.60 |
| Eastern | 1.90 | 1.58 | 0.88 | 0.61 | 0.32 | 0.86 |
| Southeast | 4.82 | 4.95 | 1.32 | 0.64 | 0.52 | 1.57 |
| Southwest | 5.31 | 2.69 | 0.91 | 0.49 | 0.52 | 1.27 |
| **Statewide** | **2.77** | **1.99** | **1.02** | **0.82** | **0.41** | **1.11** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending January 9, 2016**
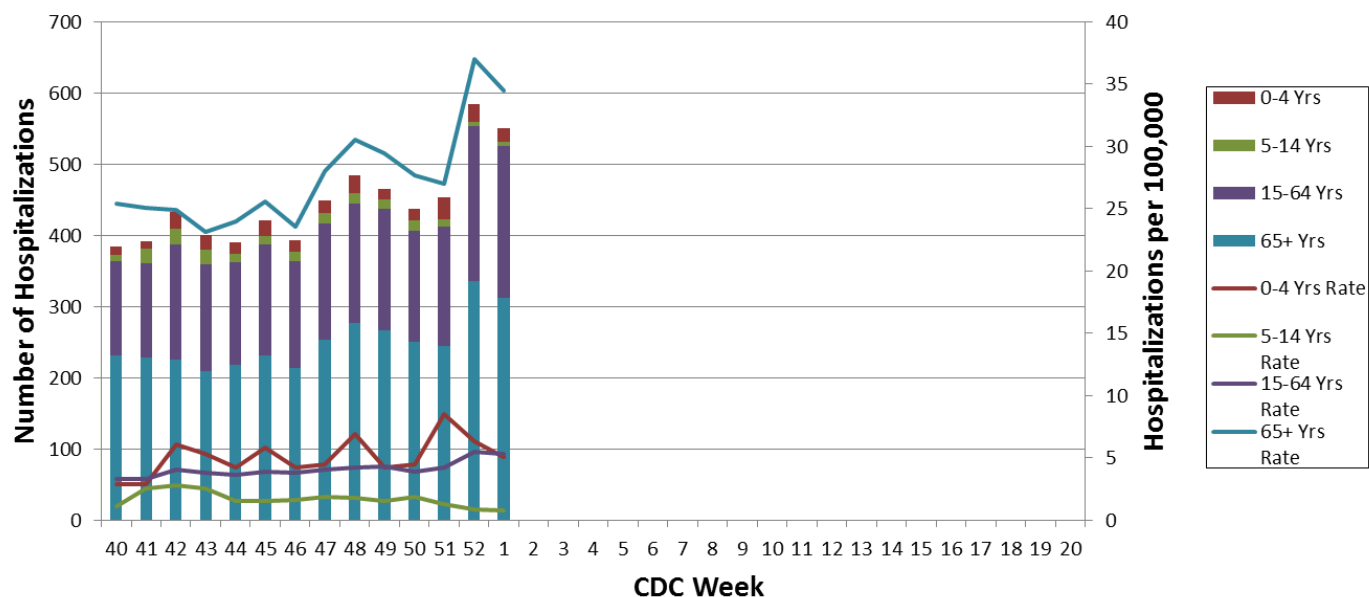


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending January 9, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=211fbfc0-d9f3-44bf-a4c7-cbcf382d2a83**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 2: January 10 – January 16, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 1,019 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 2. The influenza type for reported cases season-to-date includes 58% influenza A, 36% influenza B, and 6% untyped. Seventy-one laboratory-positive[3] influenza cases (61 influenza A, 10 influenza B) were reported during Week 2. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 2.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized two influenza isolates so far this influenza season from Missouri. Both viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 1.49% and 1.08% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 1, 74 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 869 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- Laboratory data indicated that influenza activity increased slightly in the U.S. during Week 1. Influenza A was the most frequently identified influenza virus type nationally, to date, this influenza season. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* [http://on.mo.gov/1PonZiw](http://on.mo.gov/1PonZiw). *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 2**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 2 (January 10 – January 16, 2016)**

| Influenza Type | Week 52 | Week 1 | Week 2 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 70 | 67 | 61 | 592 |
| Influenza B | 27 | 30 | 10 | 368 |
| Influenza Unknown Or Untyped | 6 | 4 | 0 | 59 |
| Total | 103 | 101 | 71 | 1,019 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 2 (January 10 – January 16, 2016)**

| Age Group | Week 2 Cases | Week 2 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 19 | 5 | 227 | 60 |
| 05-14 | 12 | 2 | 135 | 17 |
| 15-64 | 34 | 1 | 494 | 12 |
| 65+ | 6 | 1 | 163 | 18 |
| Total | 71 | 1 | 1,019 | 17 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 2 (January 10 – January 16, 2016)**
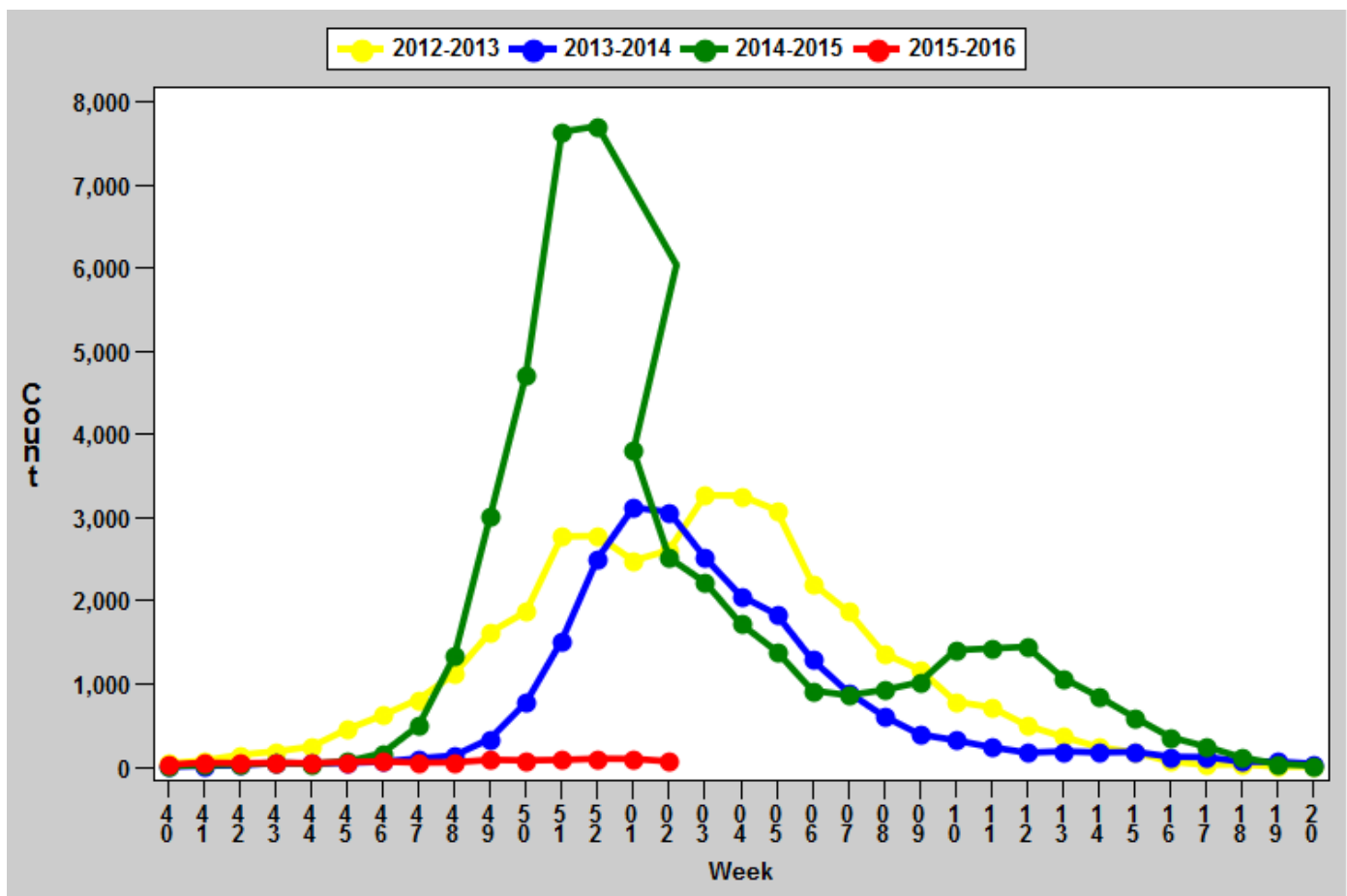
| District | Week 2 Cases | Week 2 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 1 | 0 | 142 | 22 |
| EA | 50 | 2 | 346 | 15 |
| NW | 8 | 1 | 299 | 19 |
| SE | 11 | 2 | 83 | 17 |
| SW | 1 | 0 | 149 | 14 |
| Total | 71 | 1 | 1,019 | 17 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
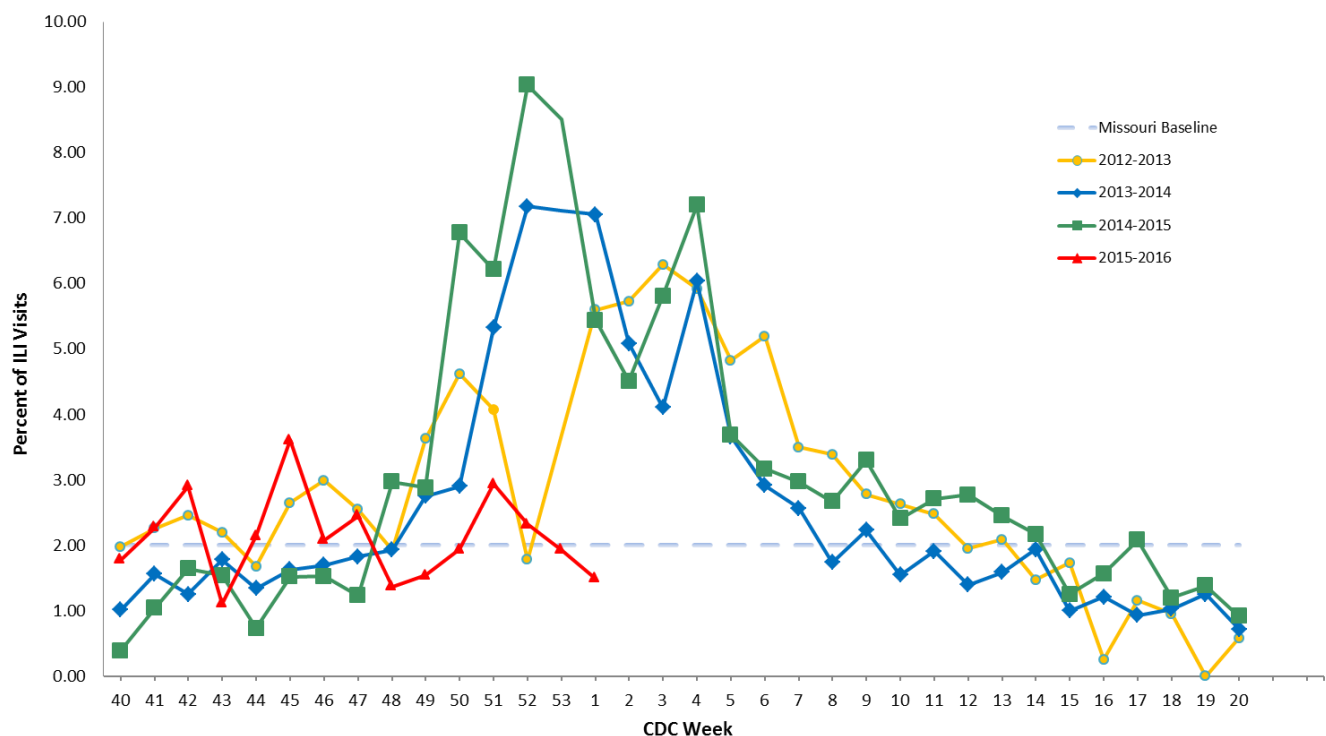[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
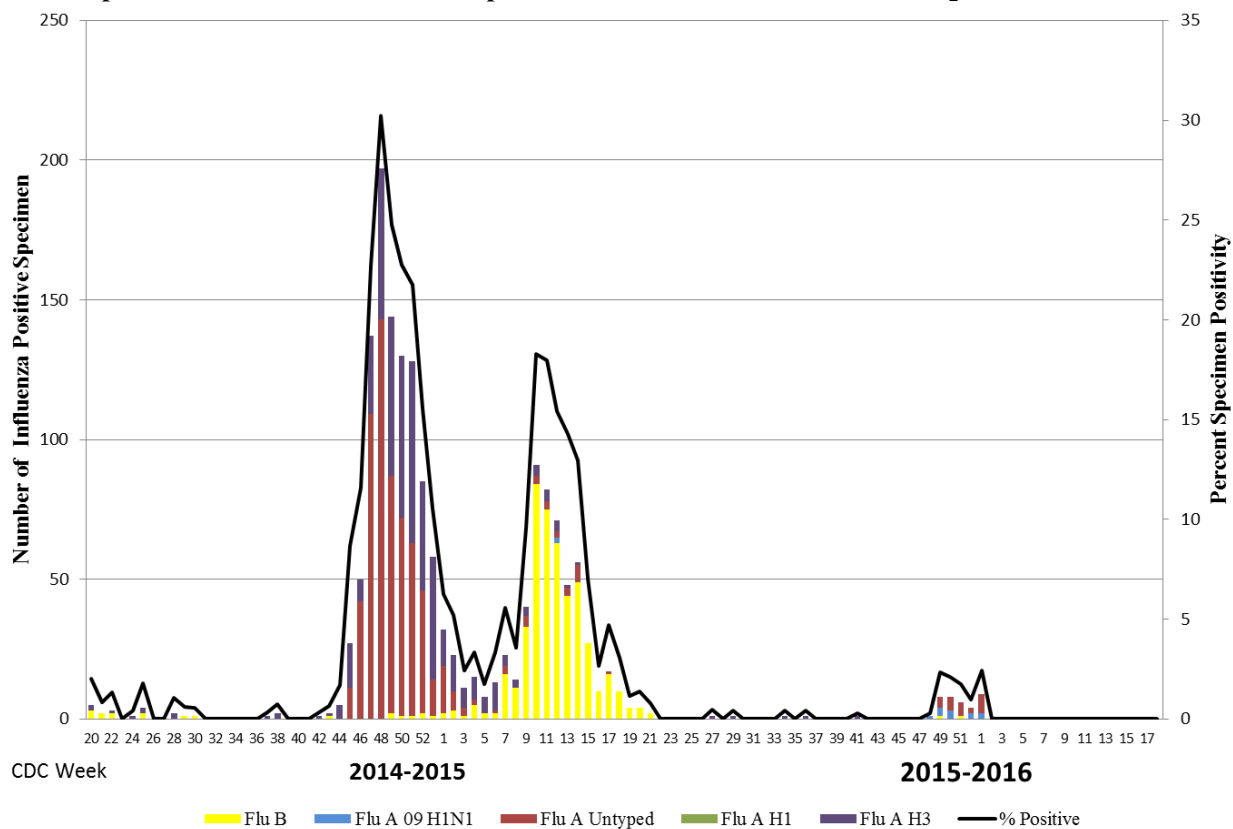*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

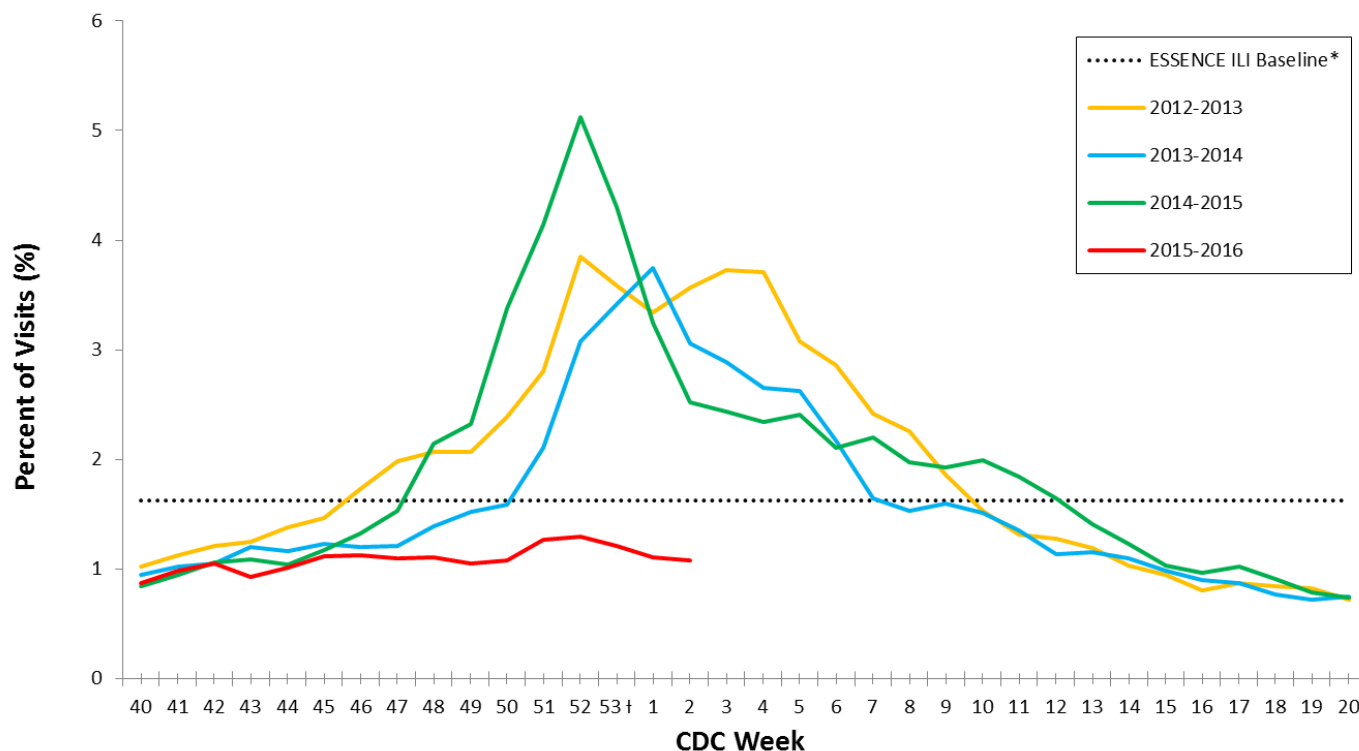# Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
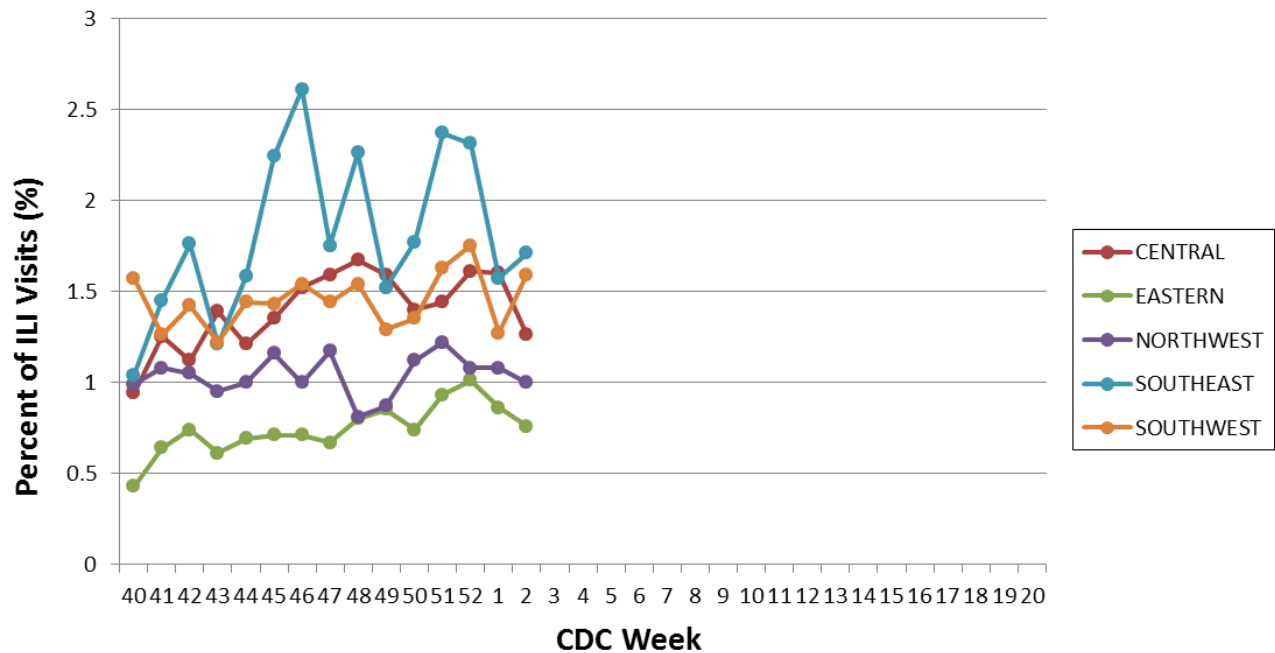
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending January 16, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.94 | 2.12 | 0.82 | 0.91 | 0.24 | 1.00 |
| Central | 4.01 | 1.83 | 1.21 | 0.64 | 0.77 | 1.26 |
| Eastern | 2.05 | 1.04 | 0.84 | 0.47 | 0.21 | 0.76 |
| Southeast | 9.23 | 2.52 | 1.11 | 0.61 | 0.76 | 1.71 |
| Southwest | 6.70 | 4.03 | 0.94 | 0.52 | 0.46 | 1.59 |
| **Statewide** | **2.77** | **1.99** | **1.02** | **0.82** | **0.41** | **1.08** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending January 16, 2016**
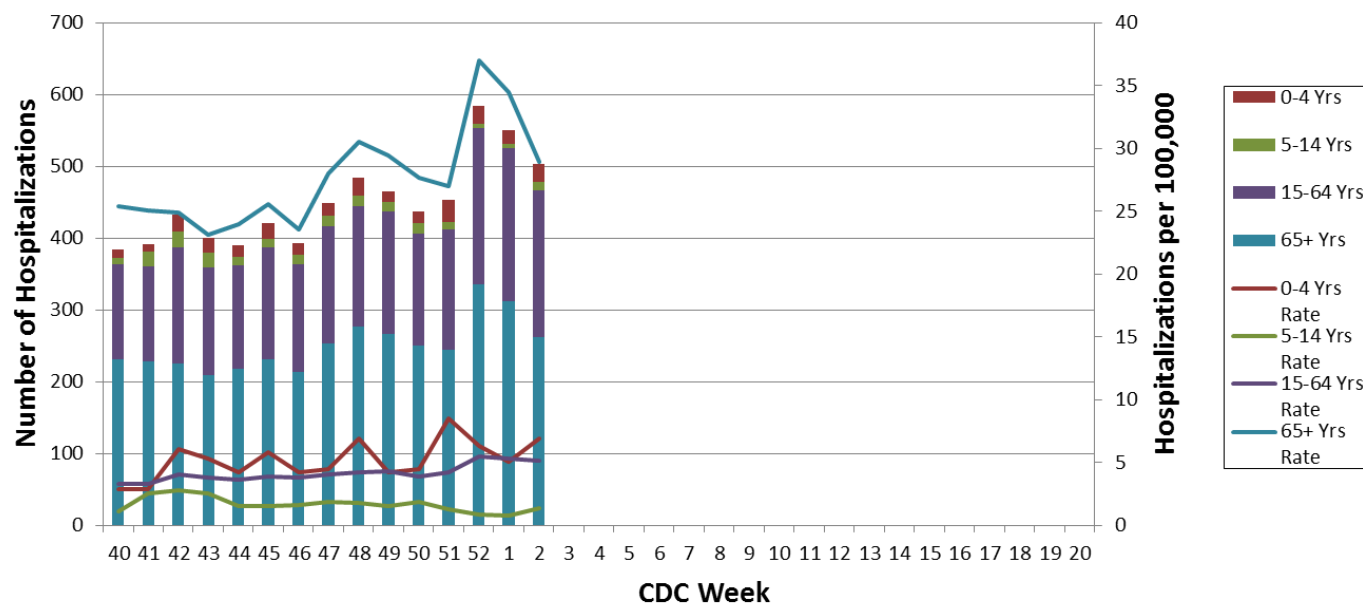


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending January 16, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=79fd0891-31f9-420c-8b16-2c77f0a4ad3a**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 3: January 17 – January 23, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 1,158 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 3. The influenza type for reported cases season-to-date includes 60% influenza A, 35% influenza B, and 5% untyped. Seventy-nine laboratory-positive[3] influenza cases (69 influenza A, 7 influenza B, and 3 untyped) were reported during Week 3. There was 1 laboratory-confirmed influenza A (H1N1) case reported by the Missouri State Public Health Laboratory (MSPHL) during Week 3.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 2 influenza isolates so far this influenza season from Missouri. Both viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.06% and 1.17% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 2, 86 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 955 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased slightly in the U.S. during Week 2. Influenza A was the most frequently identified influenza virus type nationally, to date, this influenza season. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/23qVMSM. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 3**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 3 (January 17 – January 23, 2016)**

| Influenza Type | Week 1 | Week 2 | Week 3 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 70 | 87 | 69 | 692 |
| Influenza B | 33 | 31 | 7 | 403 |
| Influenza Unknown Or Untyped | 5 | 0 | 3 | 63 |
| Total | 108 | 118 | 79 | 1,158 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 3 (January 17 – January 23, 2016)**

| Age Group | Week 3 Cases | Week 3 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 17 | 5 | 255 | 68 |
| 05-14 | 6 | 1 | 151 | 19 |
| 15-64 | 53 | 1 | 576 | 14 |
| 65+ | 3 | 0 | 176 | 19 |
| Total | 79 | 1 | 1,158 | 19 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 3 (January 17 – January 23, 2016)**
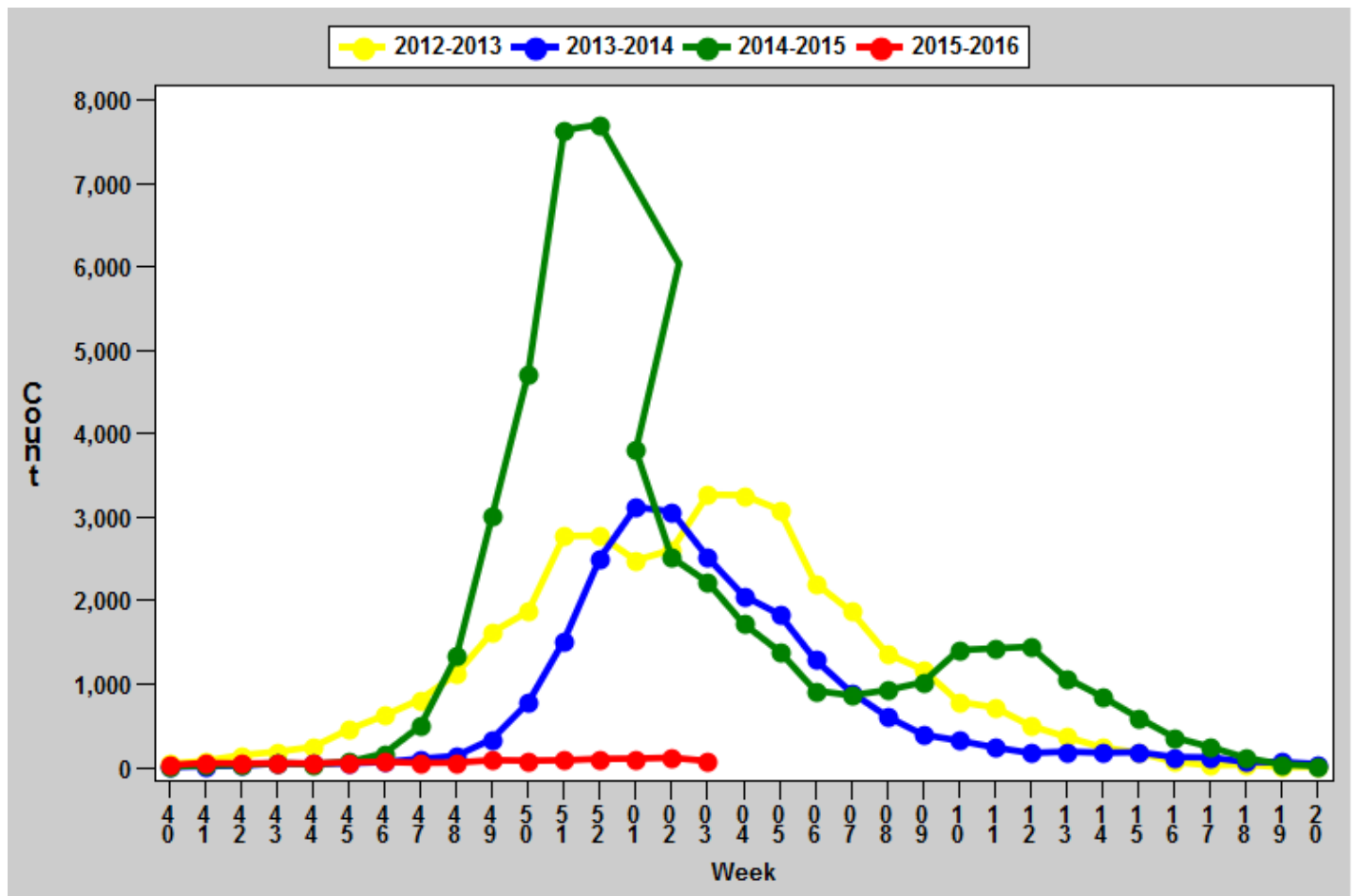
| District | Week 3 Cases | Week 3 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|----------|----------|----------|----------|----------|
| CE | 3 | 0 | 152 | 23 |
| EA | 69 | 3 | 430 | 19 |
| NW | 4 | 0 | 322 | 20 |
| SE | 2 | 0 | 91 | 19 |
| SW | 1 | 0 | 163 | 15 |
| Total | 79 | 1 | 1,158 | 19 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
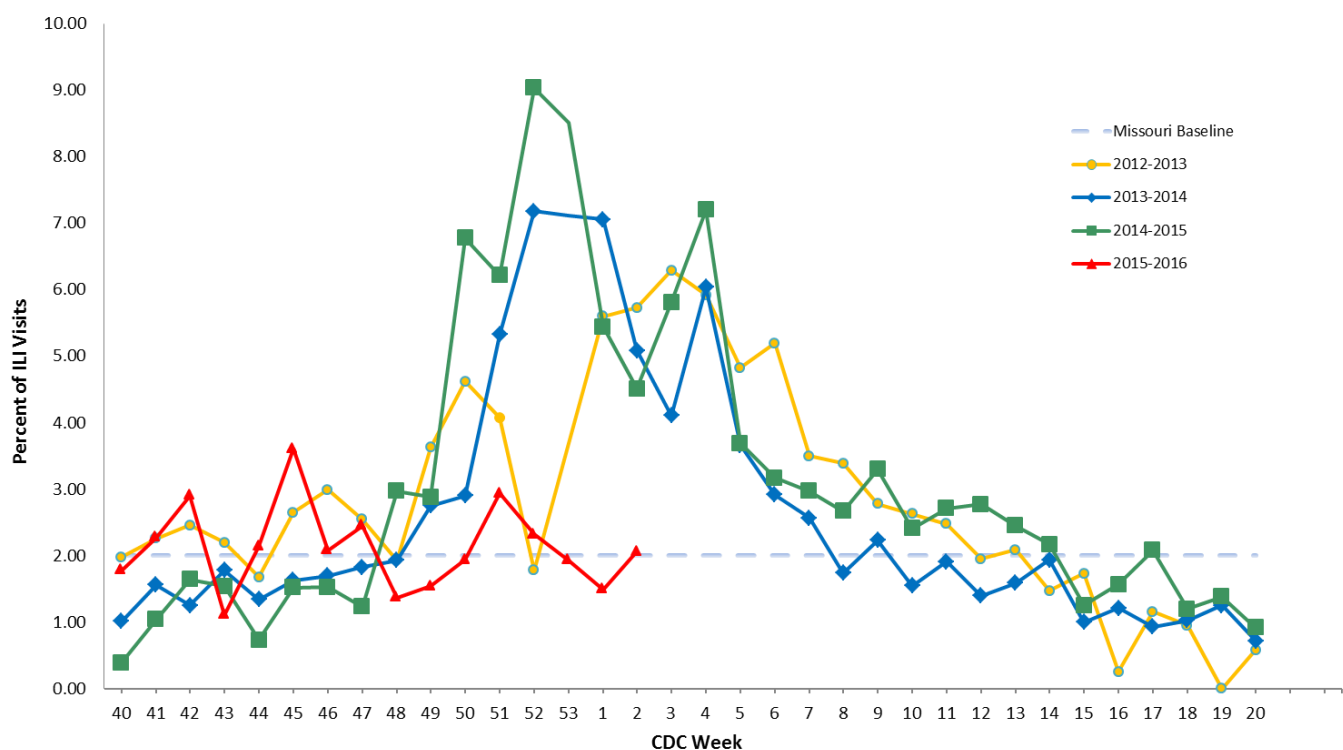[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
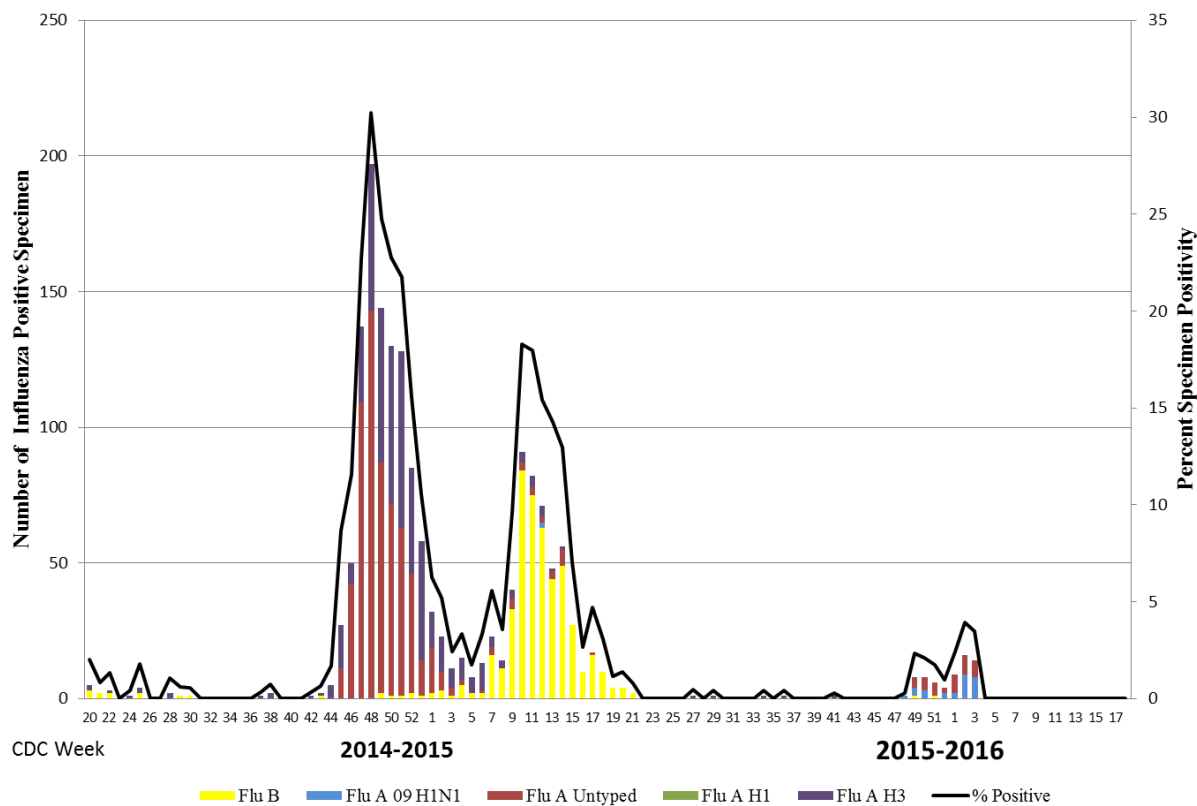*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

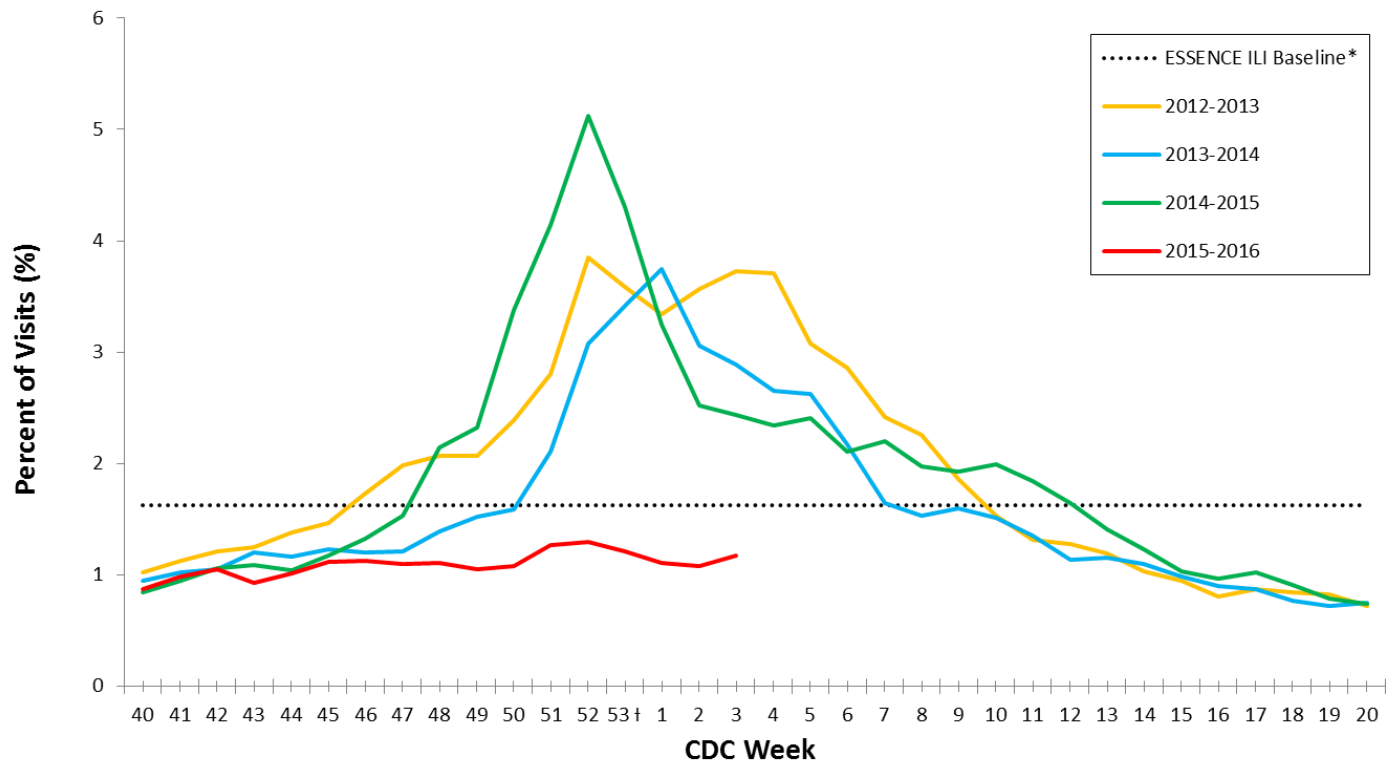**Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
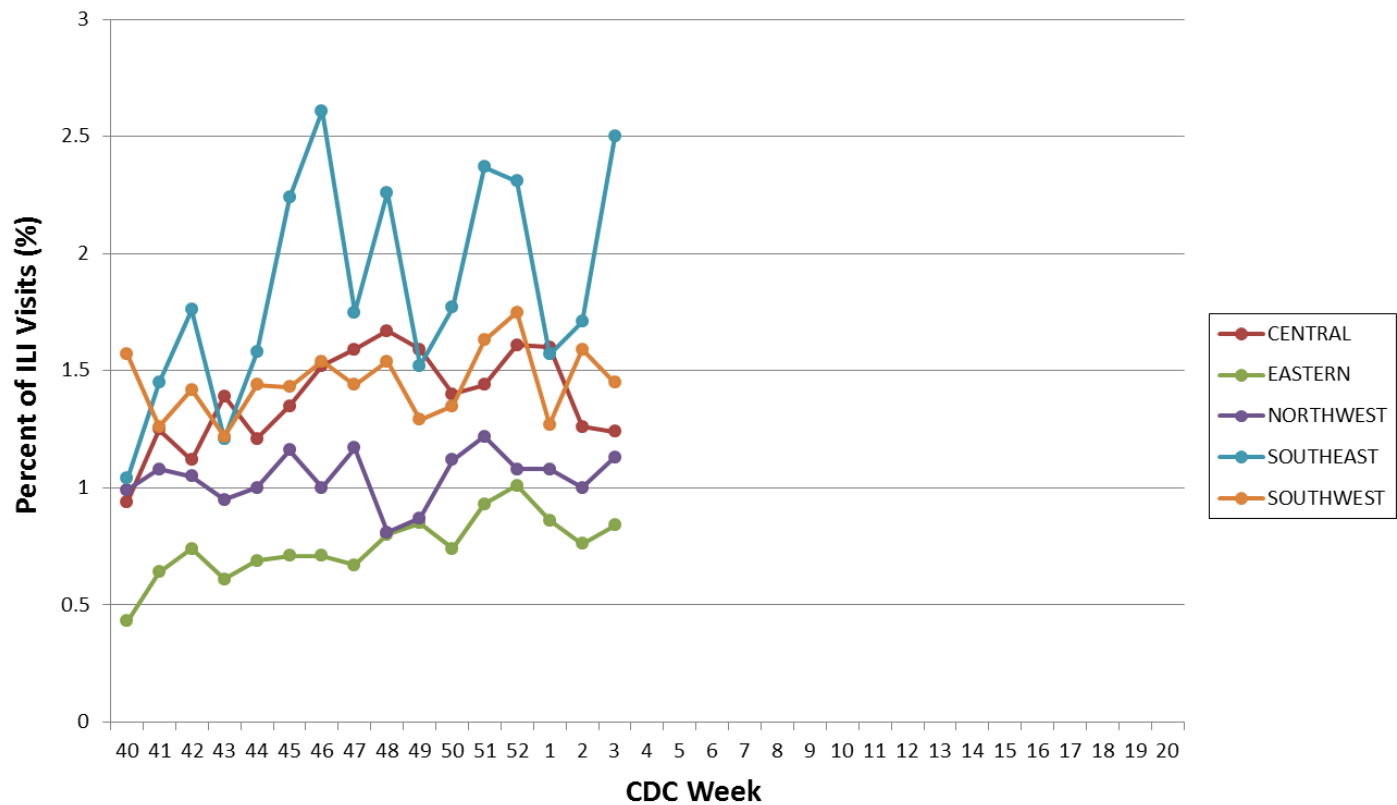
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending January 23, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.71 | 1.94 | 0.99 | 1.18 | 0.47 | 1.13 |
| Central | 5.64 | 1.17 | 0.96 | 0.53 | 0.56 | 1.24 |
| Eastern | 2.04 | 1.37 | 0.84 | 0.70 | 0.14 | 0.84 |
| Southeast | 10.39 | 5.59 | 1.65 | 1.04 | 0.61 | 2.50 |
| Southwest | 5.82 | 3.87 | 0.78 | 0.62 | 0.47 | 1.45 |
| **Statewide** | **3.37** | **2.23** | **0.93** | **0.82** | **0.35** | **1.17** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending January 23, 2016
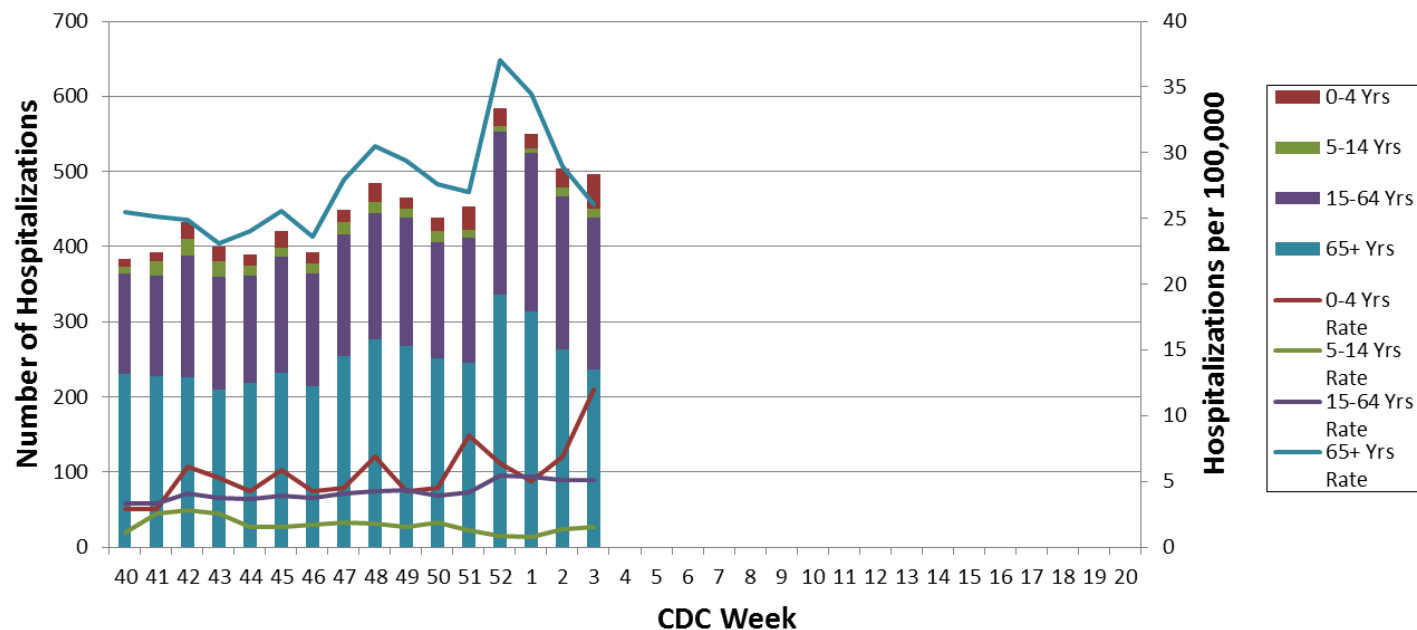


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

## Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending January 23, 2016



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=36f74c64-1a8b-4e55-921f-fcfe3dde0a98**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 4: January 24 – January 30, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 1,390 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 4. The influenza type for reported cases season-to-date includes 63% influenza A, 32% influenza B, and 5% untyped. One hundred and fifty-three laboratory-positive[3] influenza cases (132 influenza A, 19 influenza B, and two untyped) were reported during Week 4. There were two laboratory-confirmed cases of influenza A (H3) reported by the Missouri State Public Health Laboratory (MSPHL) during Week 4.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized two influenza isolates so far this influenza season from Missouri. Both viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.02% and 1.14% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 3, 69 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,024 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased slightly in the U.S. during Week 3. Influenza A was the most frequently identified influenza virus type nationally, to date, this influenza season. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1] The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2] Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4] Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5] The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

## Surveillance Data:

### Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1maILLe. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 4**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

### Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 4 (January 24 – January 30, 2016)**

| Influenza Type | Week 2 | Week 3 | Week 4 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 93 | 114 | 132 | 880 |
| Influenza B | 38 | 21 | 19 | 443 |
| Influenza Unknown Or Untyped | 1 | 4 | 2 | 67 |
| Total | 132 | 139 | 153 | 1,390 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 4 (January 24 – January 30, 2016)**

| Age Group | Week 4 Cases | Week 4 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 30 | 8 | 306 | 81 |
| 05-14 | 18 | 2 | 184 | 23 |
| 15-64 | 94 | 2 | 708 | 18 |
| 65+ | 11 | 1 | 192 | 21 |
| Total | 153 | 3 | 1,390 | 23 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 4 (January 24 – January 30, 2016)**
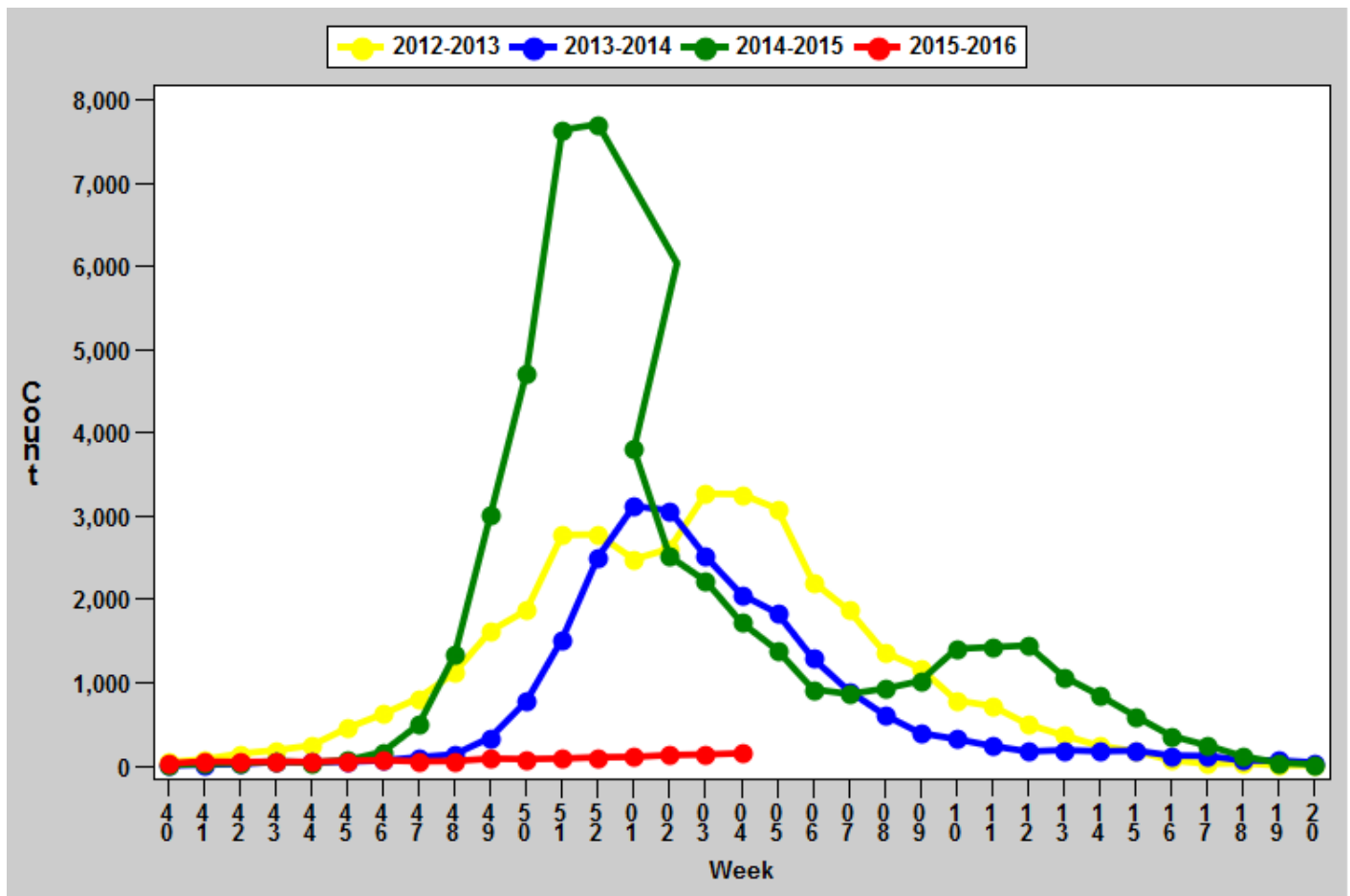
| District | Week 4 Cases | Week 4 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 4 | 1 | 160 | 24 |
| EA | 128 | 6 | 569 | 25 |
| NW | 9 | 1 | 379 | 24 |
| SE | 10 | 2 | 111 | 23 |
| SW | 2 | 0 | 171 | 16 |
| Total | 153 | 3 | 1,390 | 23 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
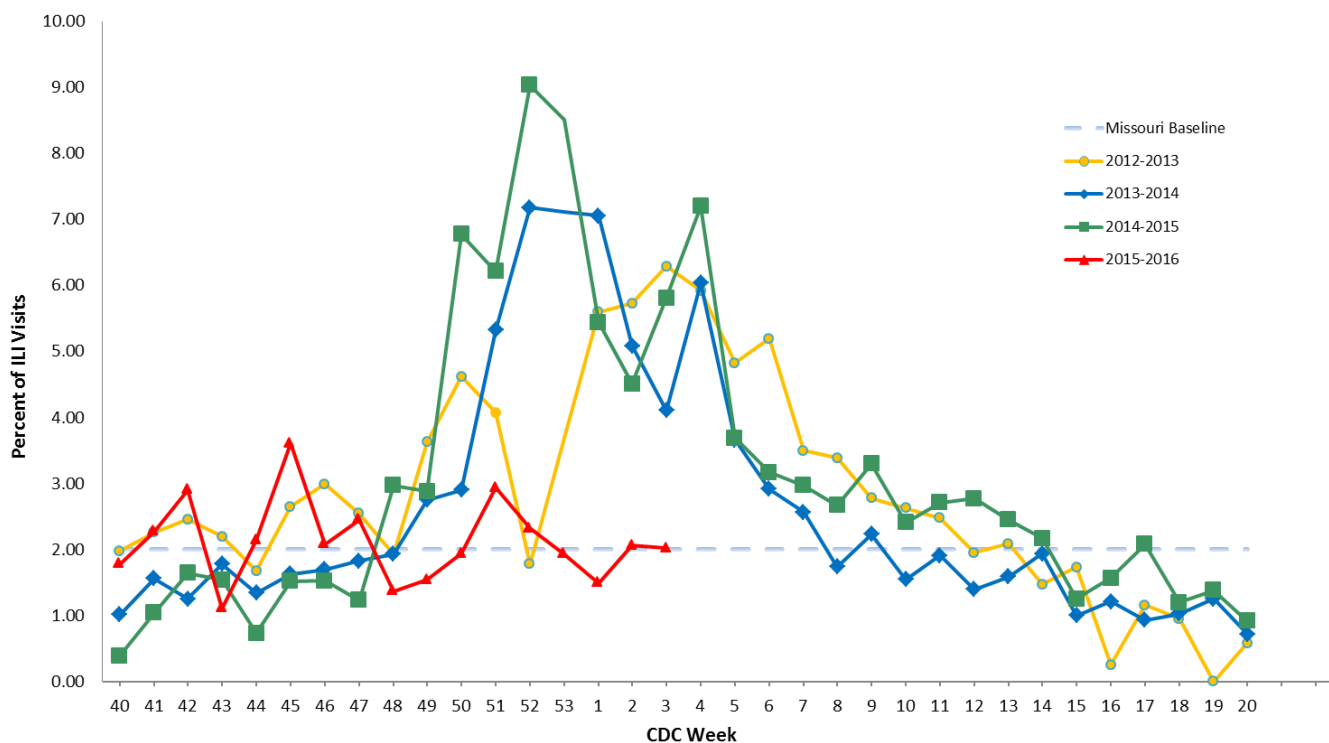[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
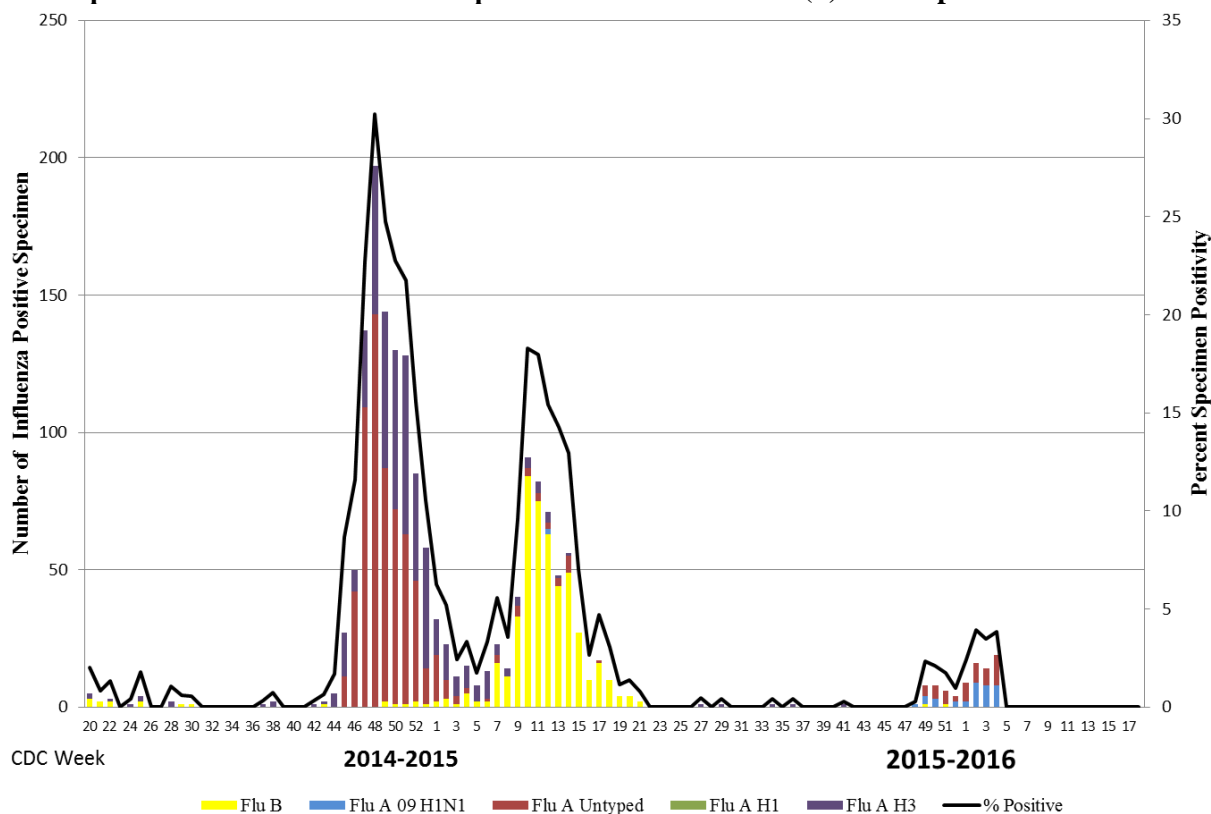*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

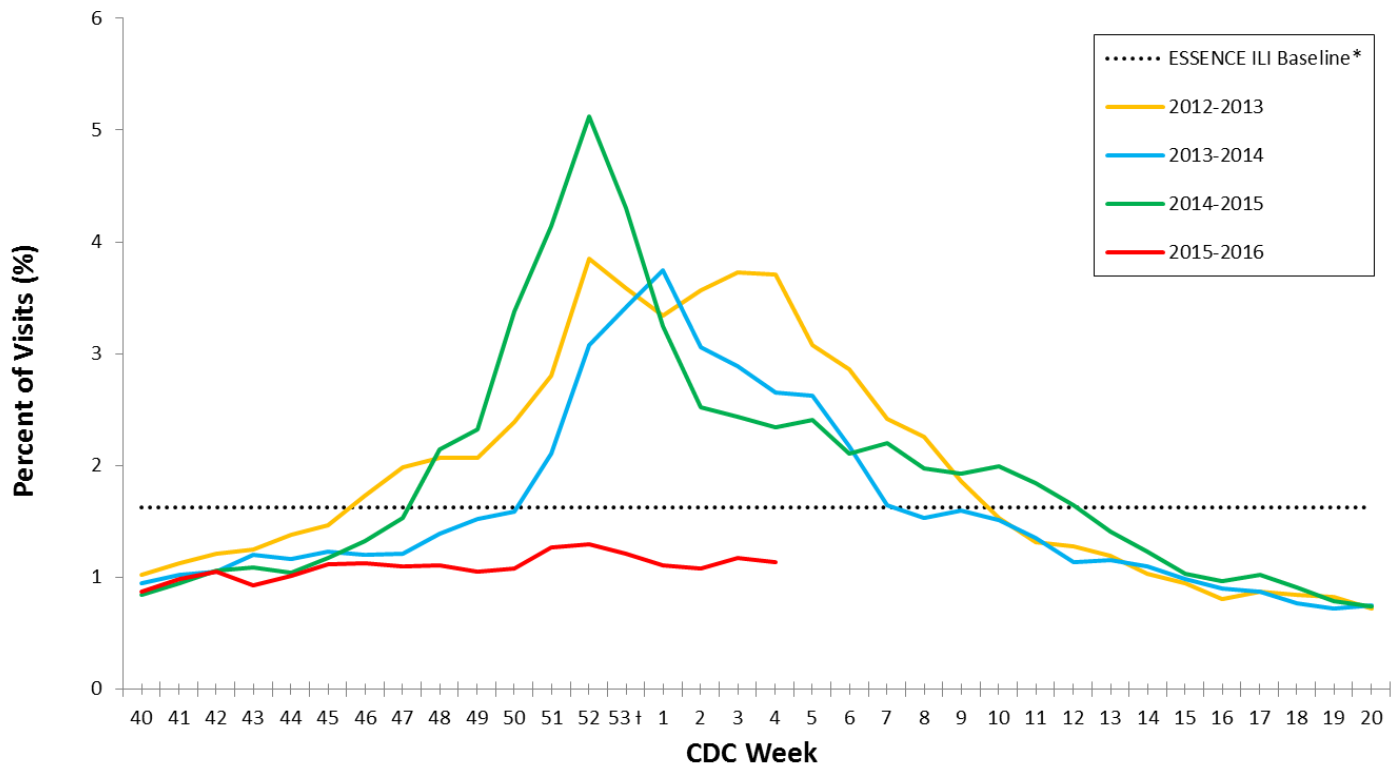**Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
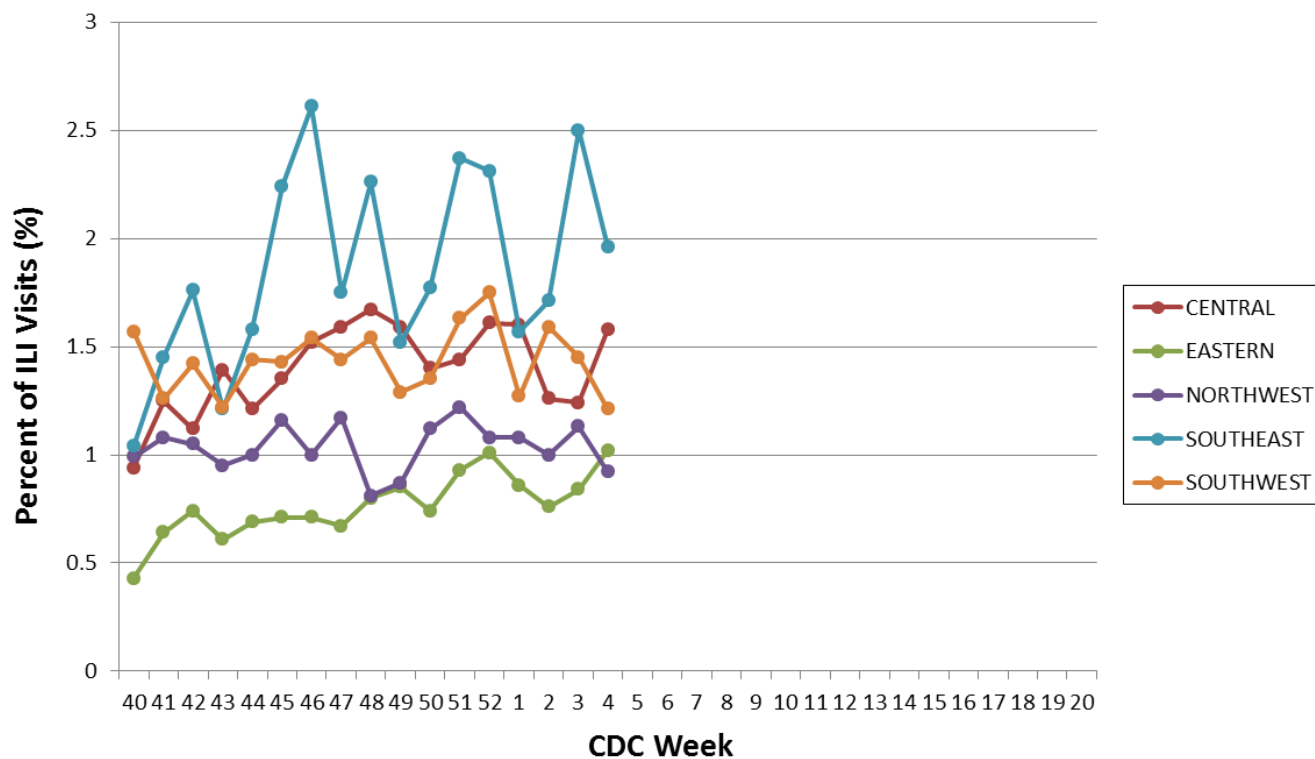
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending January 30, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.53 | 1.29 | 1.05 | 0.64 | 0.30 | 0.92 |
| Central | 7.09 | 2.72 | 1.27 | 0.33 | 0.29 | 1.58 |
| Eastern | 1.93 | 2.04 | 0.95 | 0.89 | 0.27 | 1.02 |
| Southeast | 8.38 | 4.05 | 1.24 | 0.49 | 0.29 | 1.96 |
| Southwest | 4.91 | 2.62 | 0.66 | 0.72 | 0.33 | 1.21 |
| **Statewide** | **3.16** | **2.14** | **0.98** | **0.72** | **0.29** | **1.14** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending January 30, 2016**
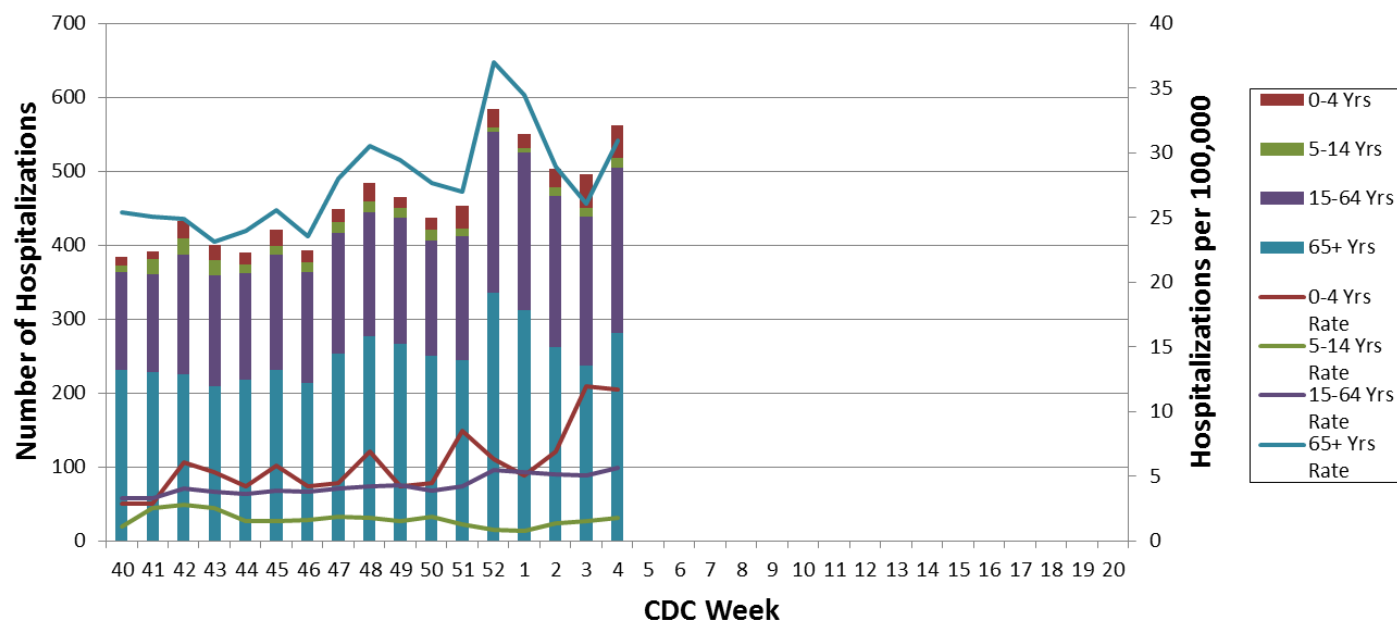


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending January 30, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=f661b2c4-1734-4792-b15a-c616c7069010**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 5: January 31 – February 6, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic.[2]

- A season-to-date total of 1,685 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 5. The influenza type for reported cases season-to-date includes 67% influenza A, 29% influenza B, and 4% untyped. One hundred and eighty-one laboratory-positive[3] influenza cases (160 influenza A, 20 influenza B, and one untyped) were reported during Week 5. There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 5.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized two influenza isolates so far this influenza season from Missouri. Both viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity is below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 1.49% and 1.21% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 4, 87 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,111 P&I associated deaths in Missouri[5].

- No influenza or ILI-associated outbreaks or school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased slightly in the U.S. during Week 4. Influenza A was the most frequently identified influenza virus type nationally, to date, this influenza season. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

## Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1Q7akDf. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 5**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 5 (January 31 – February 6, 2016)**

| Influenza Type | Week 3 | Week 4 | Week 5 | 2015-2016[*] Season-to-Date |
|---|---|---|---|---|
| Influenza A | 127 | 199 | 160 | 1,122 |
| Influenza B | 26 | 41 | 20 | 490 |
| Influenza Unknown Or Untyped | 6 | 5 | 1 | 73 |
| Total | 159 | 245 | 181 | 1,685 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 5 (January 31 – February 6, 2016)**

| Age Group | Week 5 Cases | Week 5 Rate[‡] | 2015-2016[*] Season-to-Date | 2015-2016[*] Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 27 | 7 | 353 | 94 |
| 05-14 | 37 | 5 | 237 | 30 |
| 15-64 | 97 | 2 | 874 | 22 |
| 65+ | 20 | 2 | 221 | 24 |
| Total | 181 | 3 | 1,685 | 28 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 5 (January 31 – February 6, 2016)**
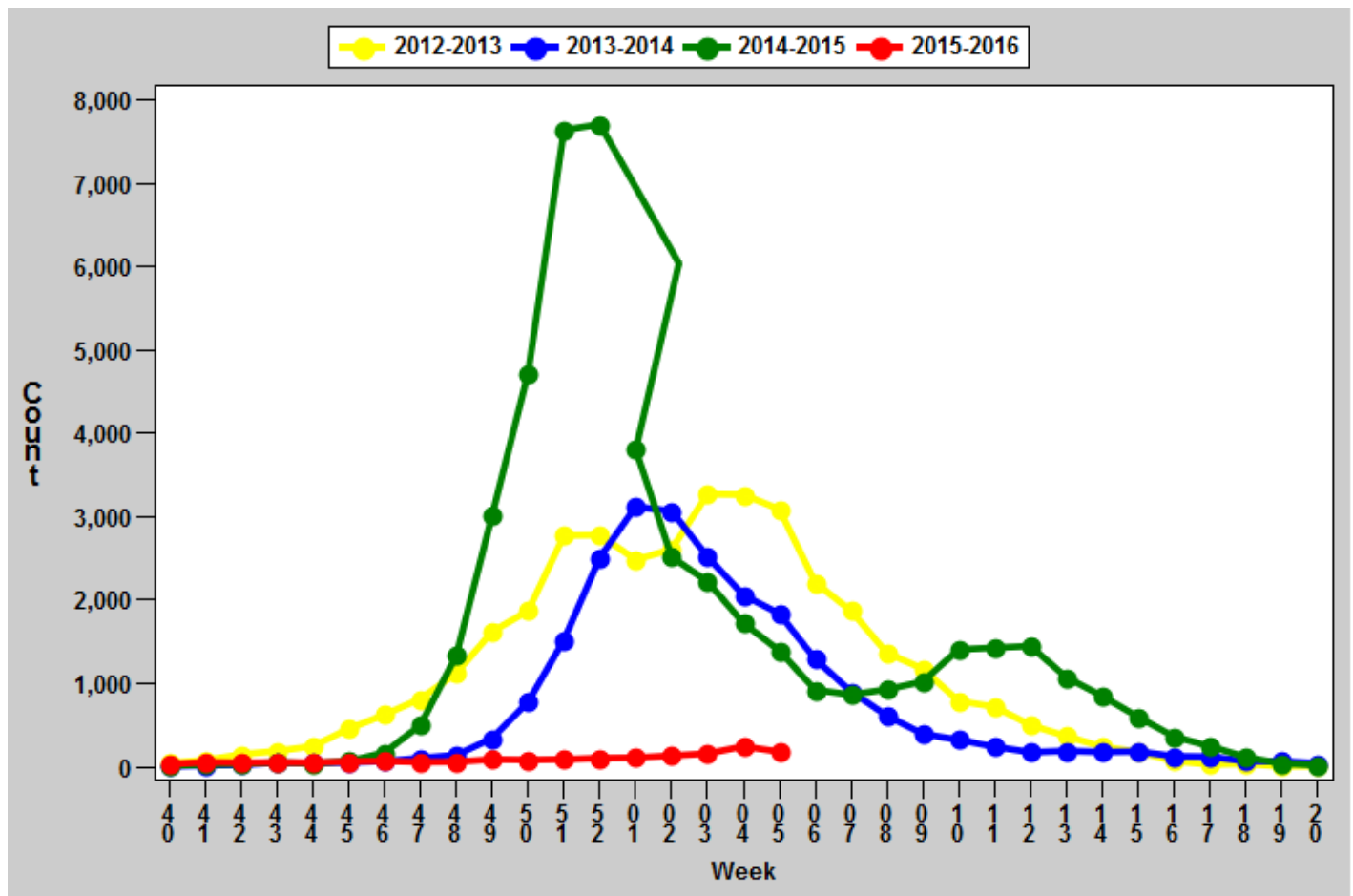
| District | Week 5 Cases | Week 5 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 2 | 0 | 189 | 29 |
| EA | 155 | 7 | 743 | 33 |
| NW | 14 | 1 | 448 | 28 |
| SE | 8 | 2 | 123 | 26 |
| SW | 2 | 0 | 182 | 17 |
| Total | 181 | 3 | 1,685 | 28 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
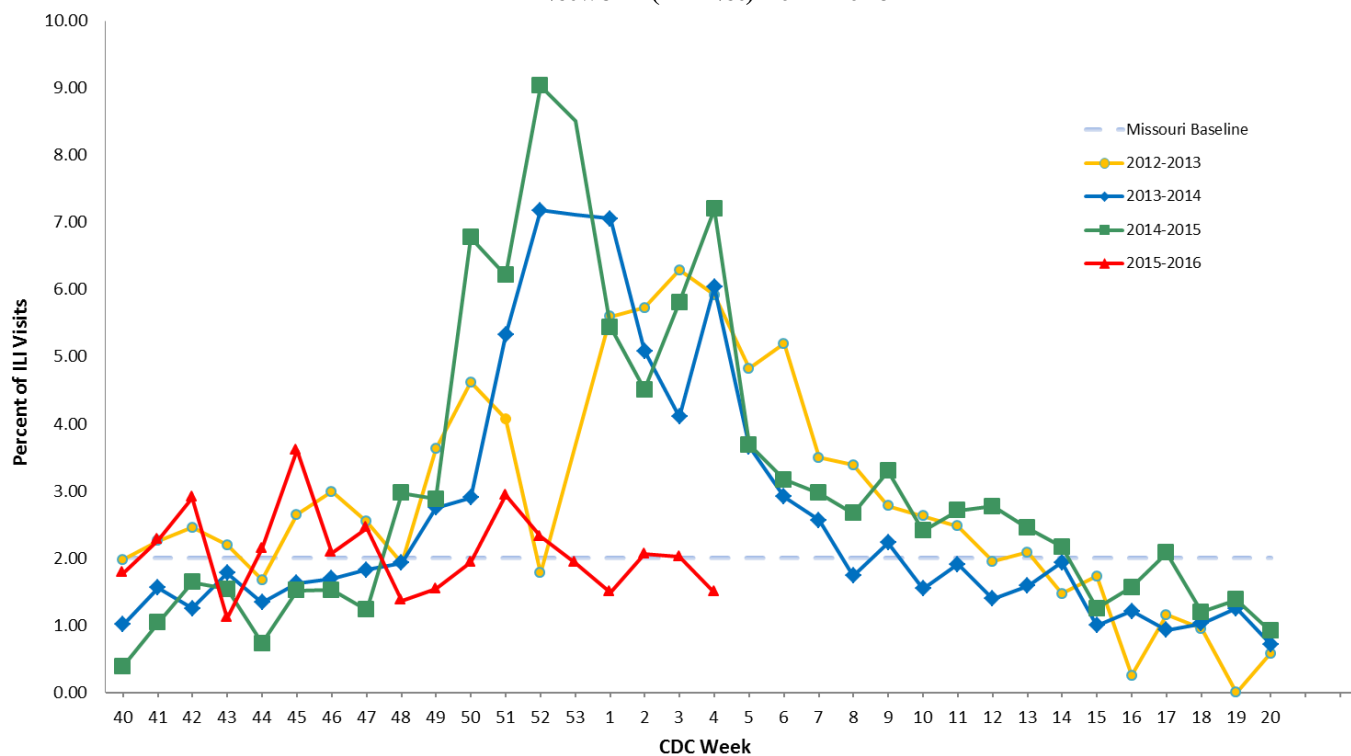[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
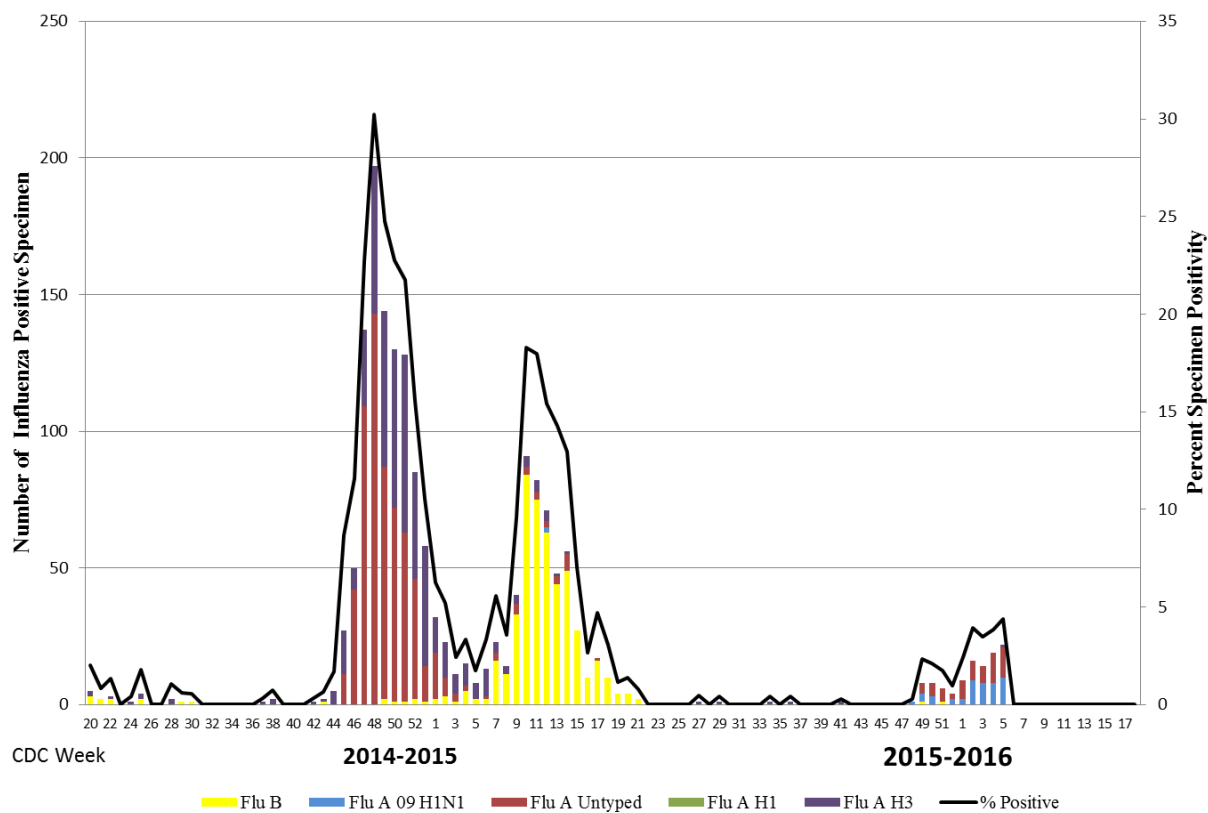*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

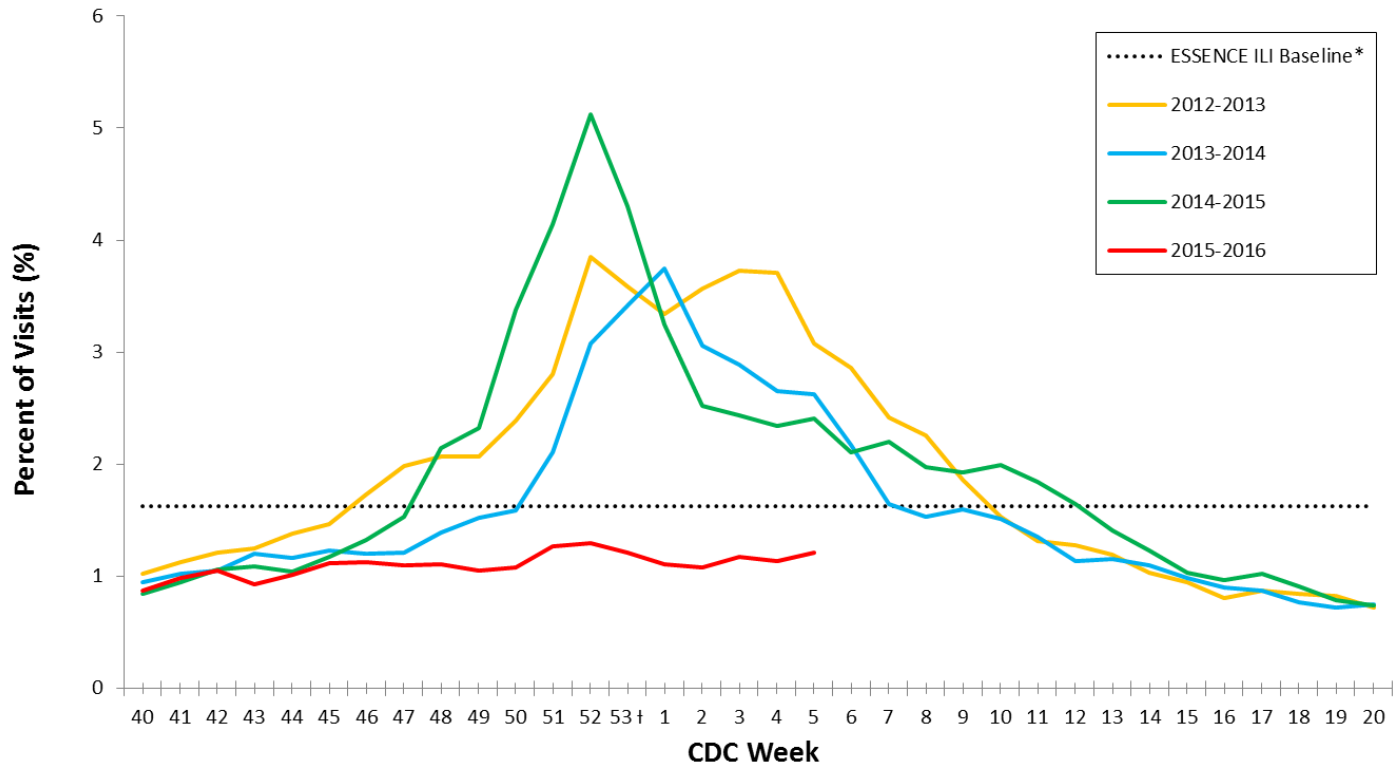## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
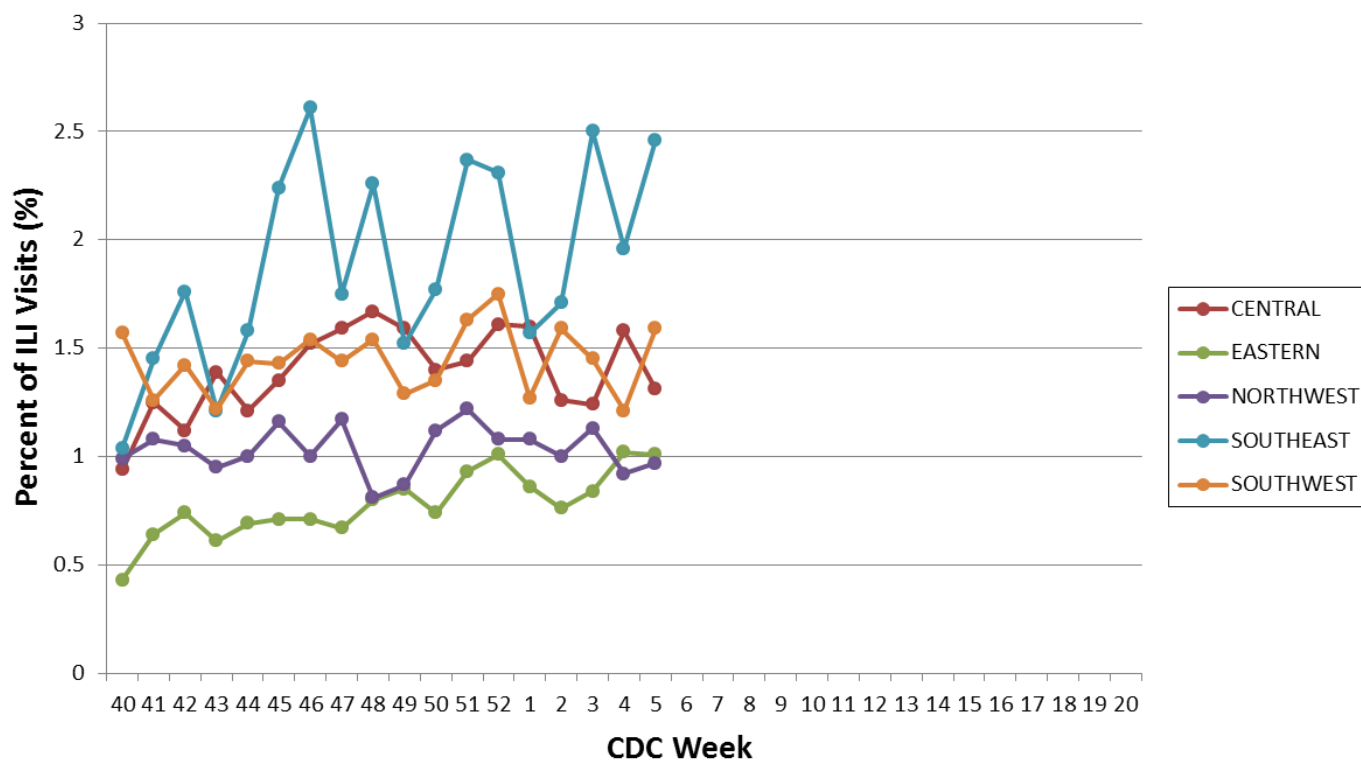
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending February 6, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.41 | 2.15 | 0.94 | 0.62 | 0.36 | 0.97 |
| Central | 5.08 | 1.38 | 1.30 | 0.64 | 0.29 | 1.31 |
| Eastern | 2.63 | 1.75 | 0.81 | 0.64 | 0.49 | 1.01 |
| Southeast | 11.75 | 5.45 | 1.32 | 0.54 | 0.59 | 2.46 |
| Southwest | 6.38 | 3.64 | 0.88 | 0.51 | 0.37 | 1.59 |
| **Statewide** | **3.60** | **2.35** | **0.94** | **0.61** | **0.43** | **1.21** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending February 6, 2016**
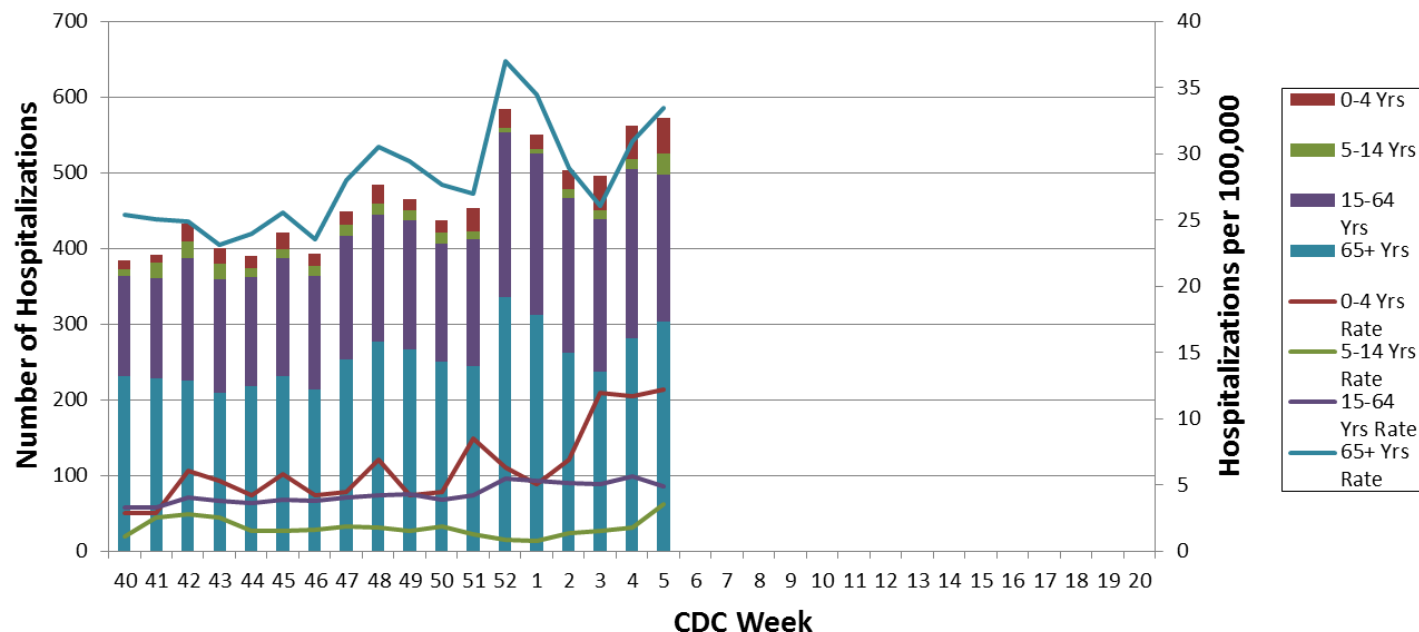


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending February 6, 2016**



Data Source:  Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal.  Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=f661b2c4-1734-4792-b15a-c616c7069010**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 6: February 7 – February 13, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Local.[2]

- A season-to-date total of 2,170 laboratory-positive[3] influenza cases have been reported in Missouri as of Week 6. The influenza type for reported cases season-to-date includes 69% influenza A, 27% influenza B, and 4% untyped. Two hundred and ninety-eight laboratory-positive[3] influenza cases (252 influenza A, 39 influenza B, and seven untyped) were reported during Week 6. There were two laboratory-confirmed influenza A (H1N1) cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 6.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized two influenza isolates so far this influenza season from Missouri. Both viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity is above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.56% and 1.44% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 5, 61 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,172 P&I associated deaths in Missouri[5].

- One influenza or ILI-associated outbreak has been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased slightly in the U.S. during Week 5. Influenza A was the most frequently identified influenza virus type nationally, to date, this influenza season. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Local is defined as: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of the state.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1R6fJre. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 6**

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**

- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 6 (February 7 – February 13, 2016)**

| Influenza Type | Week 4 | Week 5 | Week 6 | 2015-2016∗ Season-to-Date |
|---|---|---|---|---|
| Influenza A | 210 | 266 | 252 | 1,503 |
| Influenza B | 47 | 59 | 39 | 579 |
| Influenza Unknown Or Untyped | 8 | 6 | 7 | 88 |
| Total | 265 | 331 | 298 | 2,170 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 6 (February 7 – February 13, 2016)**

| Age Group | Week 6 Cases | Week 6 Rate[‡] | 2015-2016∗ Season-to-Date | 2015-2016∗ Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 62 | 16 | 444 | 118 |
| 05-14 | 46 | 6 | 329 | 42 |
| 15-64 | 162 | 4 | 1,131 | 28 |
| 65+ | 28 | 3 | 266 | 29 |
| Total | 298 | 5 | 2,170 | 36 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 6 (February 7 – February 13, 2016)**
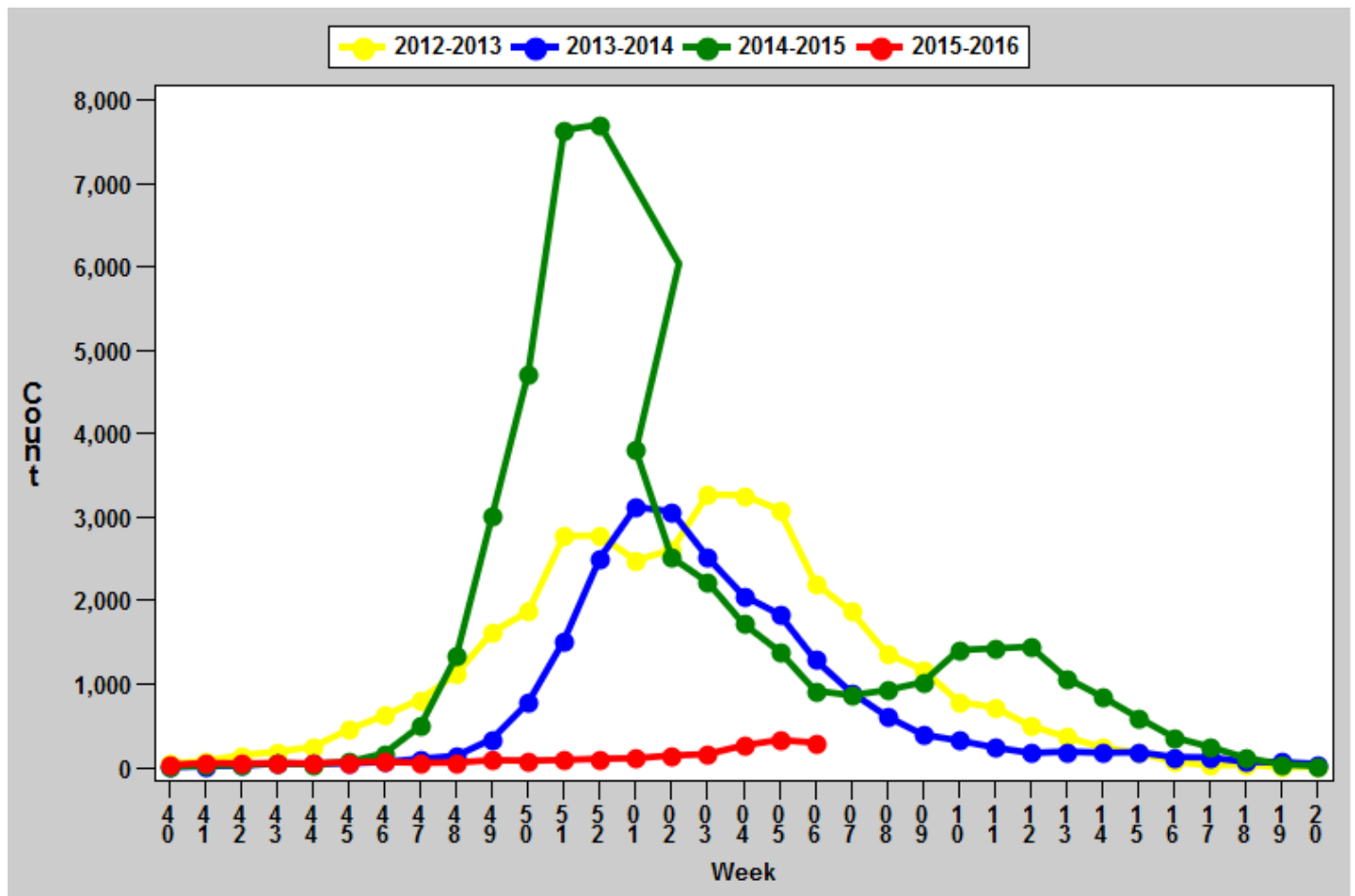
| District | Week 6 Cases | Week 6 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 13 | 2 | 234 | 35 |
| EA | 196 | 9 | 973 | 43 |
| NW | 73 | 5 | 571 | 36 |
| SE | 6 | 1 | 162 | 34 |
| SW | 10 | 1 | 230 | 21 |
| Total | 298 | 5 | 2,170 | 36 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
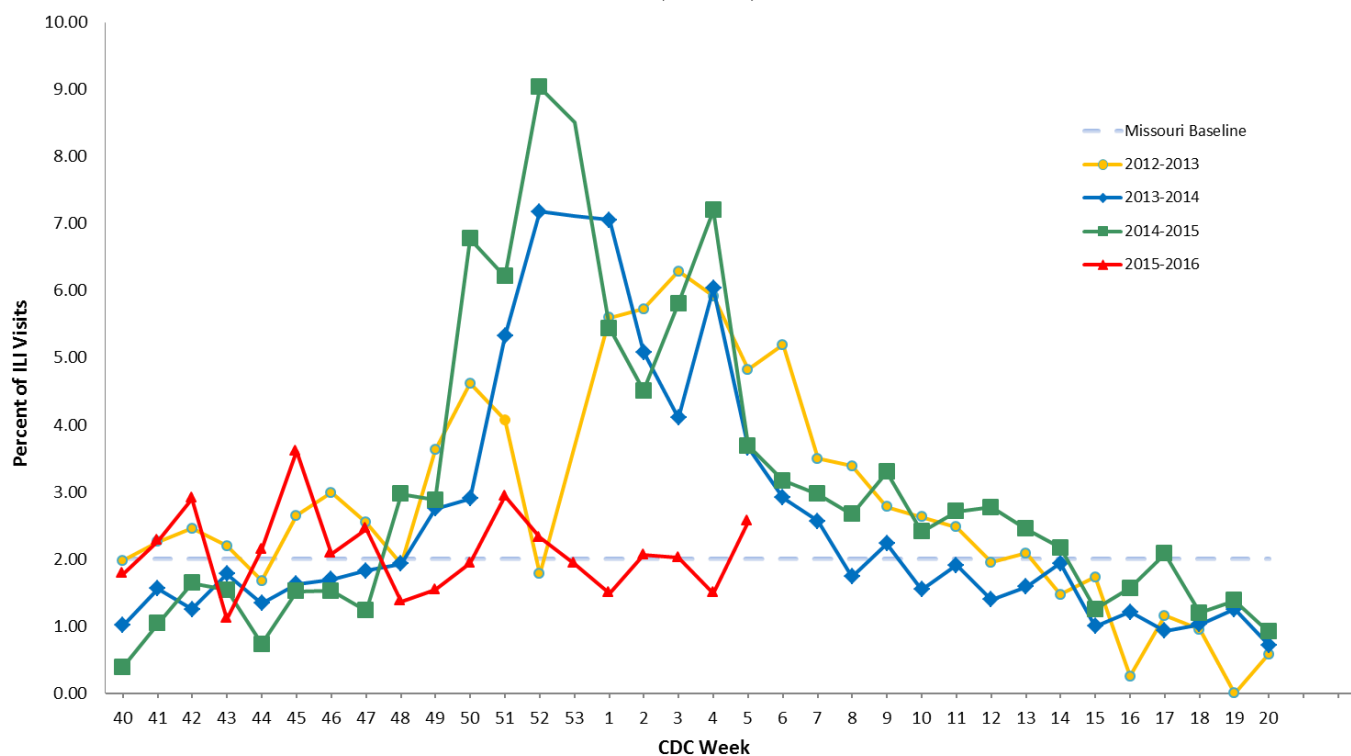[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
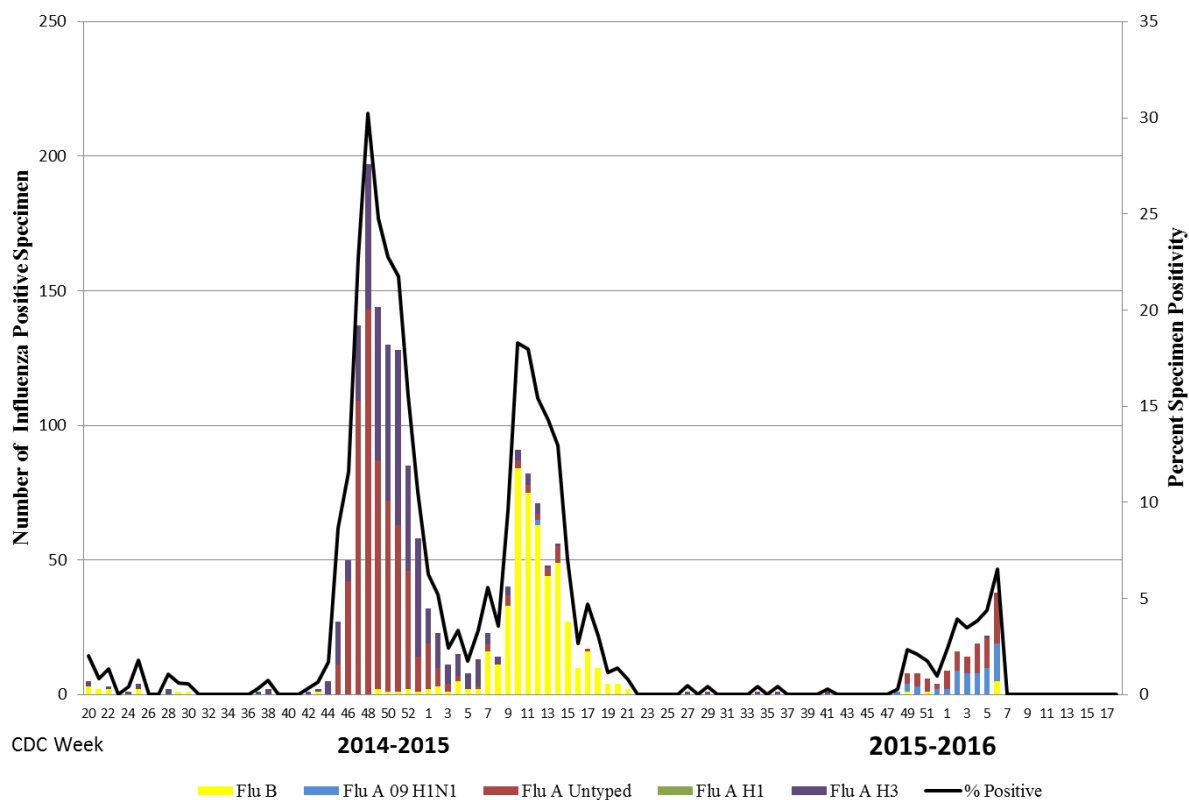*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

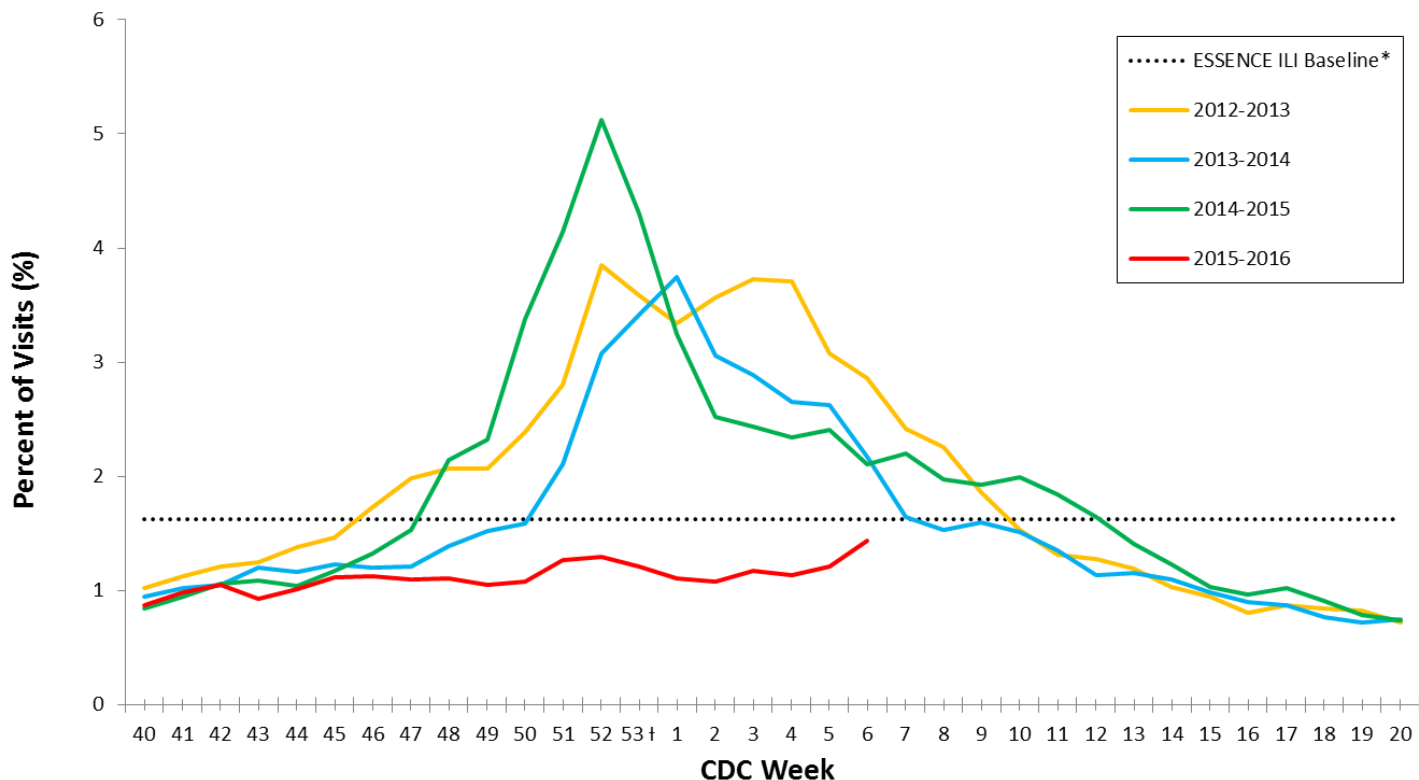## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
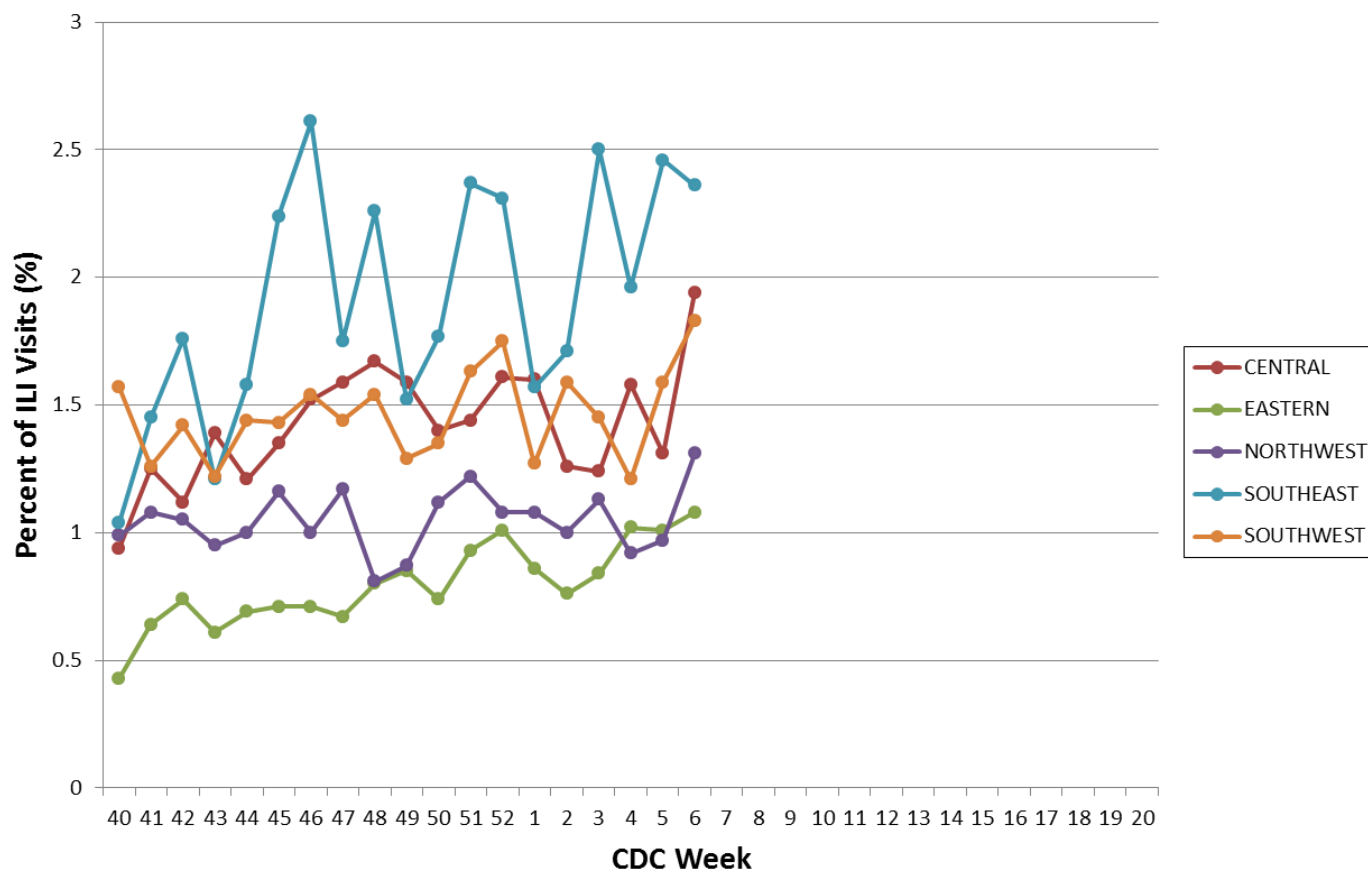
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending February 13, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.65 | 2.23 | 1.32 | 0.97 | 0.14 | 1.31 |
| Central | 5.98 | 3.07 | 1.52 | 0.97 | 1.1 | 1.94 |
| Eastern | 2.26 | 1.23 | 1.08 | 0.93 | 0.48 | 1.08 |
| Southeast | 10.89 | 4.51 | 0.92 | 0.89 | 0.43 | 2.36 |
| Southwest | 6.89 | 3.75 | 1.01 | 0.94 | 0.20 | 1.83 |
| **Statewide** | **3.99** | **2.38** | **1.17** | **0.94** | **0.41** | **1.44** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending February 13, 2016**
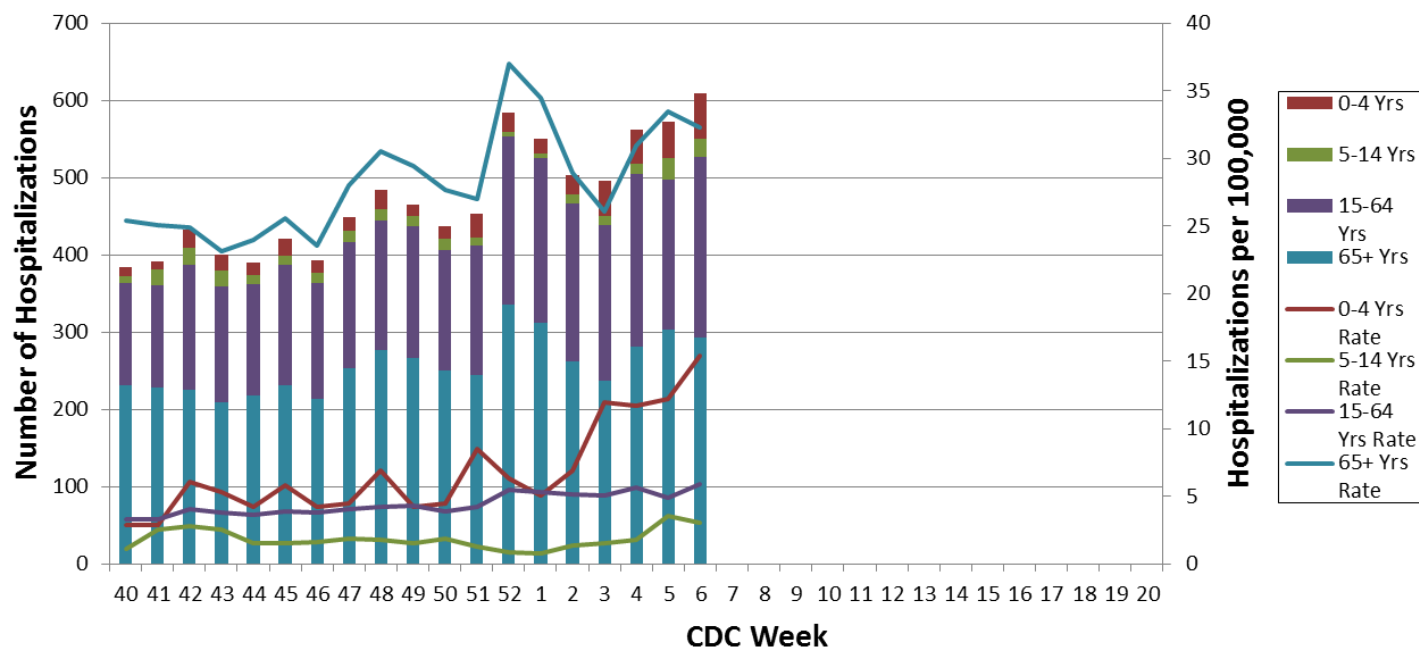


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending February 13, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 121 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=f8ca0c06-abe7-44cf-8059-934e4d0f6354**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 7: February 14 – February 20, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri remained at Local[2] for the second consecutive week.

- A season-to-date total of 2,877 laboratory-positive[3] influenza cases have been reported in Missouri.  The influenza type for reported cases season-to-date includes 72% influenza A, 25% influenza B, and 3% untyped.  Influenza A remains the predominant virus type reported this season, accounting for 88% of reported cases during Week 7.  The highest season-to-date rates of laboratory-positive influenza cases are among children aged 0-4 years (156 cases per 100,000 population) and children aged 5-14 years (58 cases per 100,000 population).  There were two laboratory-confirmed influenza cases (one case of influenza A (H1N1), one case of influenza B) reported by the Missouri State Public Health Laboratory (MSPHL) during Week 7.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized three influenza isolates so far this influenza season from Missouri.  Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus and one virus was antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus.  Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity was above baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE.  The reported percentage of visits for ILI was 2.90% and 1.62% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season.  During Week 6, 63 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,235 P&I associated deaths in Missouri[5].

- One influenza or ILI-associated outbreak has been reported in Missouri, to date, this influenza season.  No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased in the U.S. during Week 6.  National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Local is defined as: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of the state.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later.  The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/21nR0Uf. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 7**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 7 (February 14 – February 20, 2016)**

| Influenza Type | Week 5 | Week 6 | Week 7 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 301 | 416 | 339 | 2,066 |
| Influenza B | 66 | 112 | 43 | 711 |
| Influenza Unknown Or Untyped | 6 | 16 | 2 | 100 |
| Total | 373 | 544 | 384 | 2,877 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 7 (February 14 – February 20, 2016)**

| Age Group | Week 7 Cases | Week 7 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 83 | 22 | 587 | 156 |
| 05-14 | 71 | 9 | 454 | 58 |
| 15-64 | 197 | 5 | 1,517 | 38 |
| 65+ | 33 | 4 | 319 | 35 |
| Total | 384 | 6 | 2,877 | 48 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 7 (February 14 – February 20, 2016)**
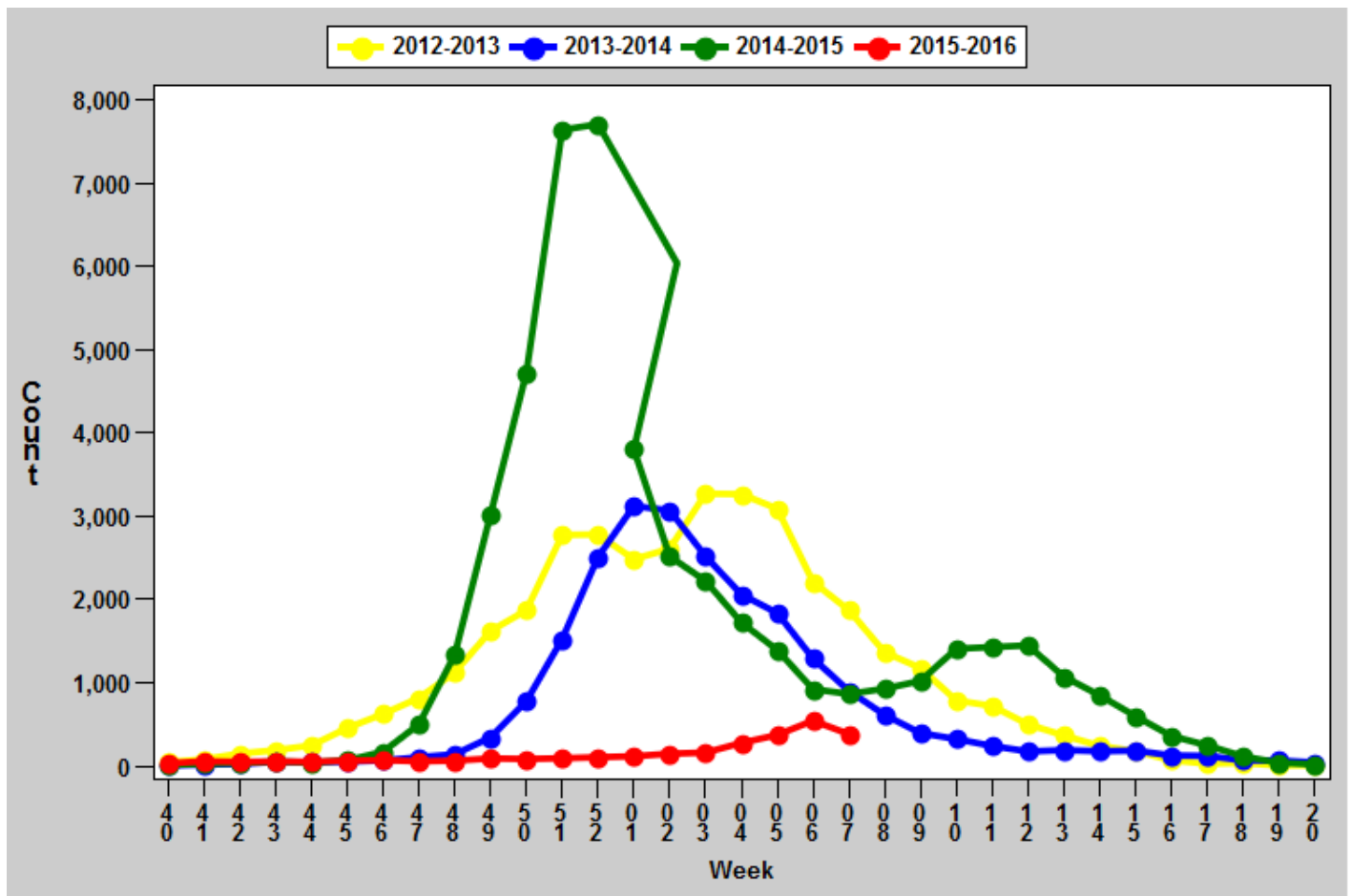
| District | Week 7 Cases | Week 7 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 17 | 3 | 312 | 47 |
| EA | 267 | 12 | 1,292 | 57 |
| NW | 57 | 4 | 738 | 47 |
| SE | 14 | 3 | 186 | 39 |
| SW | 29 | 3 | 349 | 33 |
| Total | 384 | 6 | 2,877 | 48 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
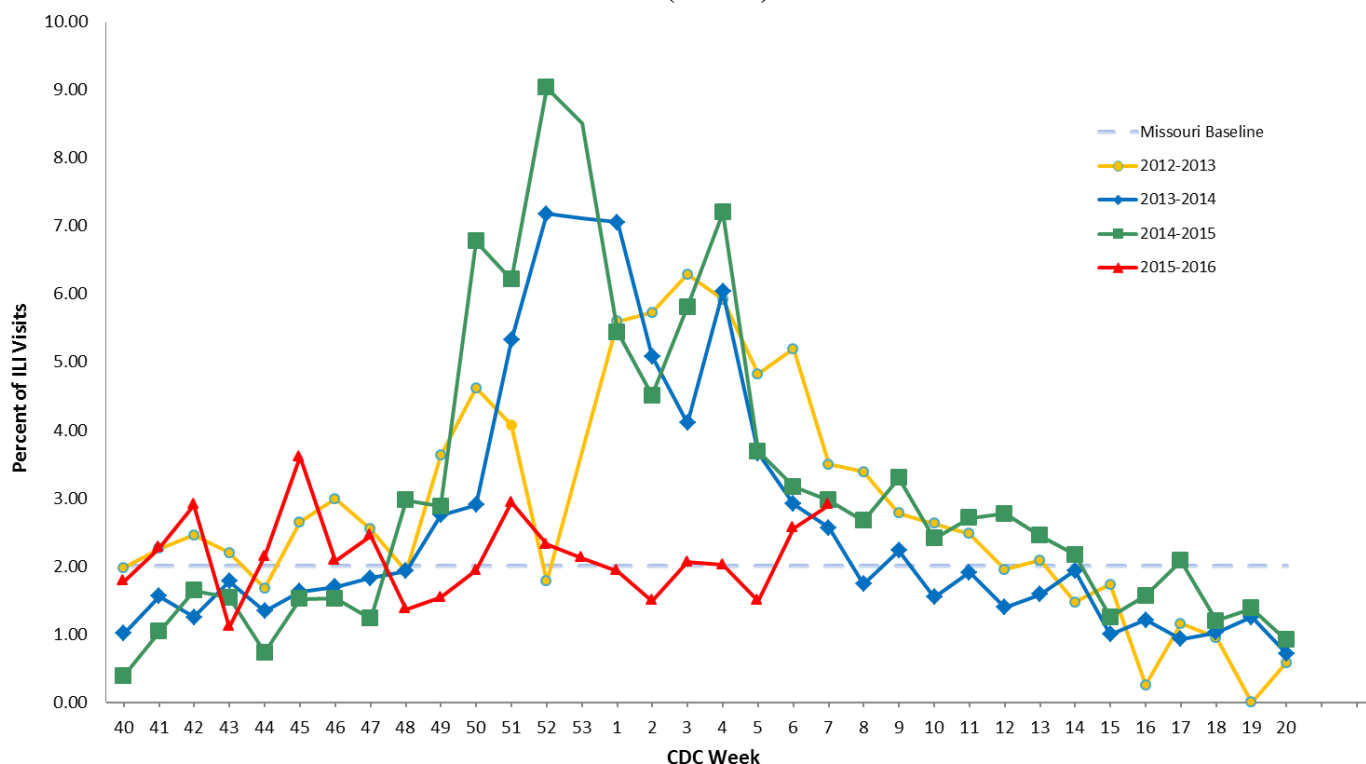[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
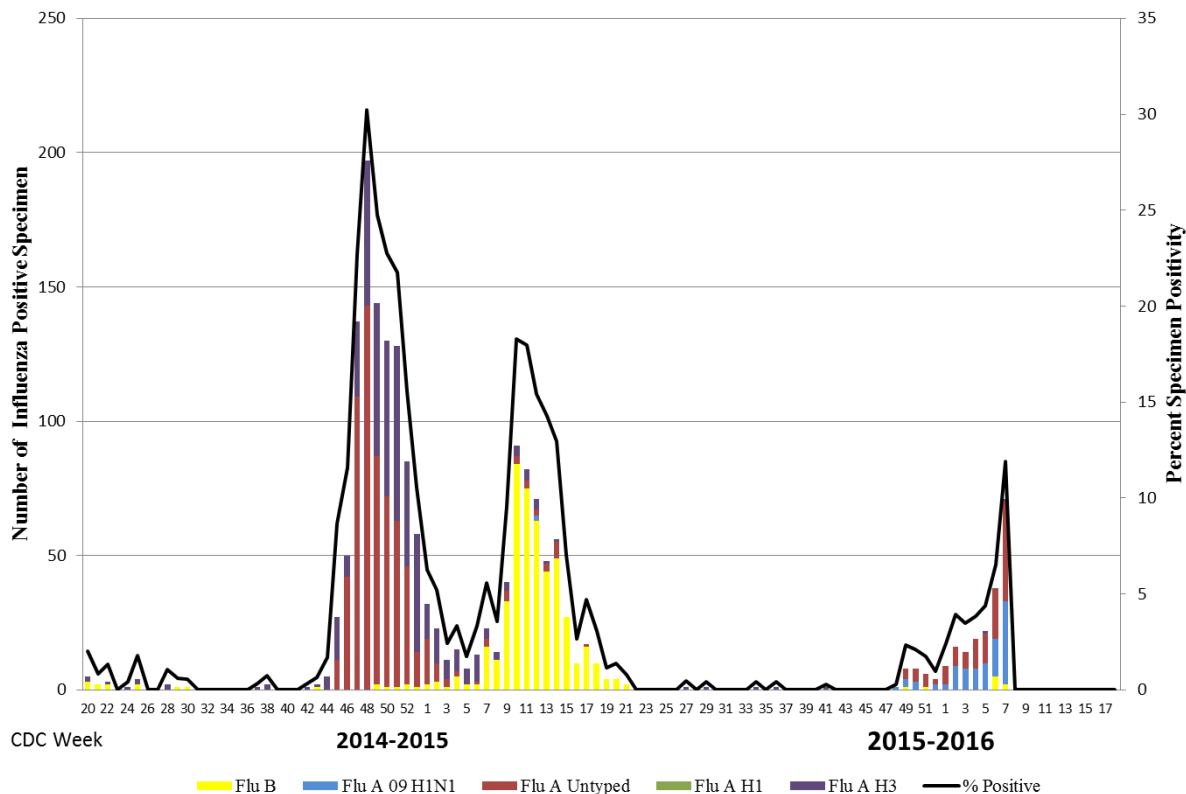*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

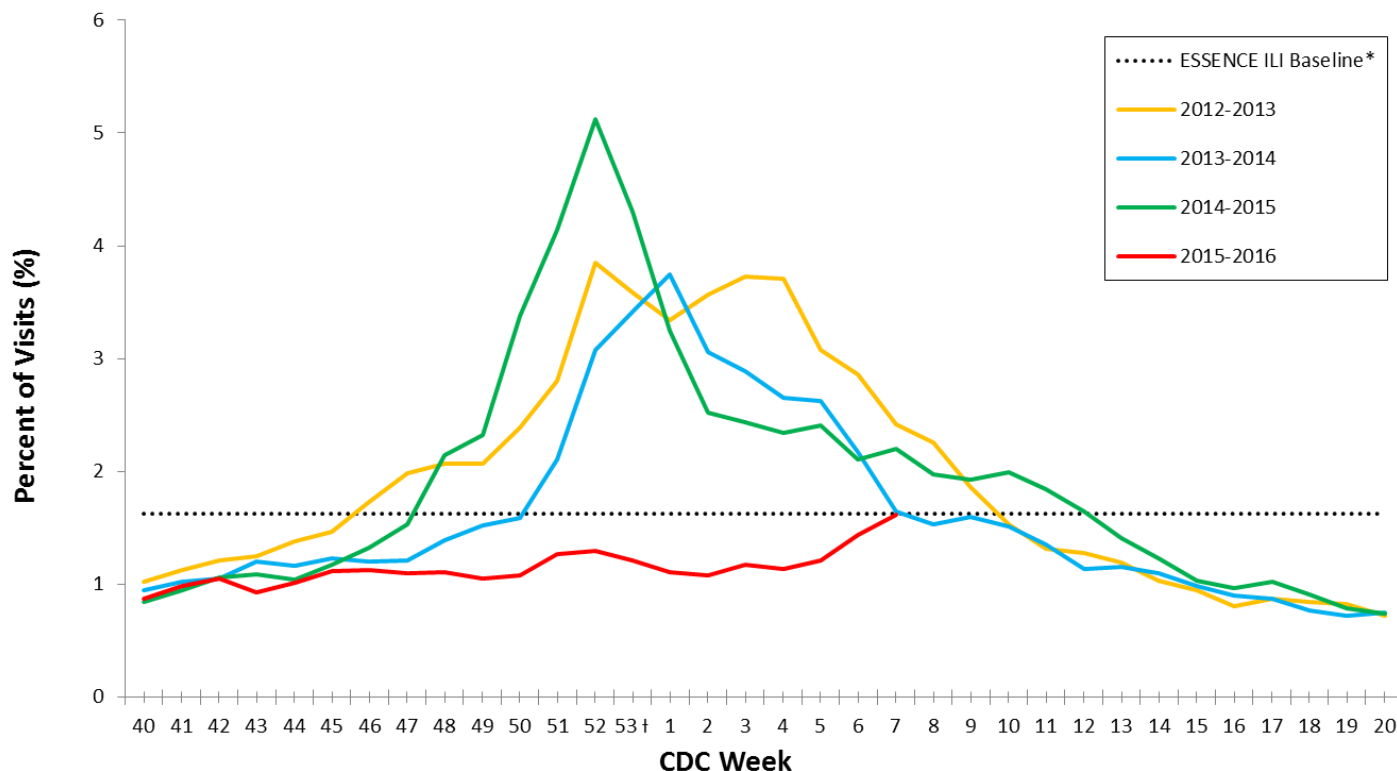## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
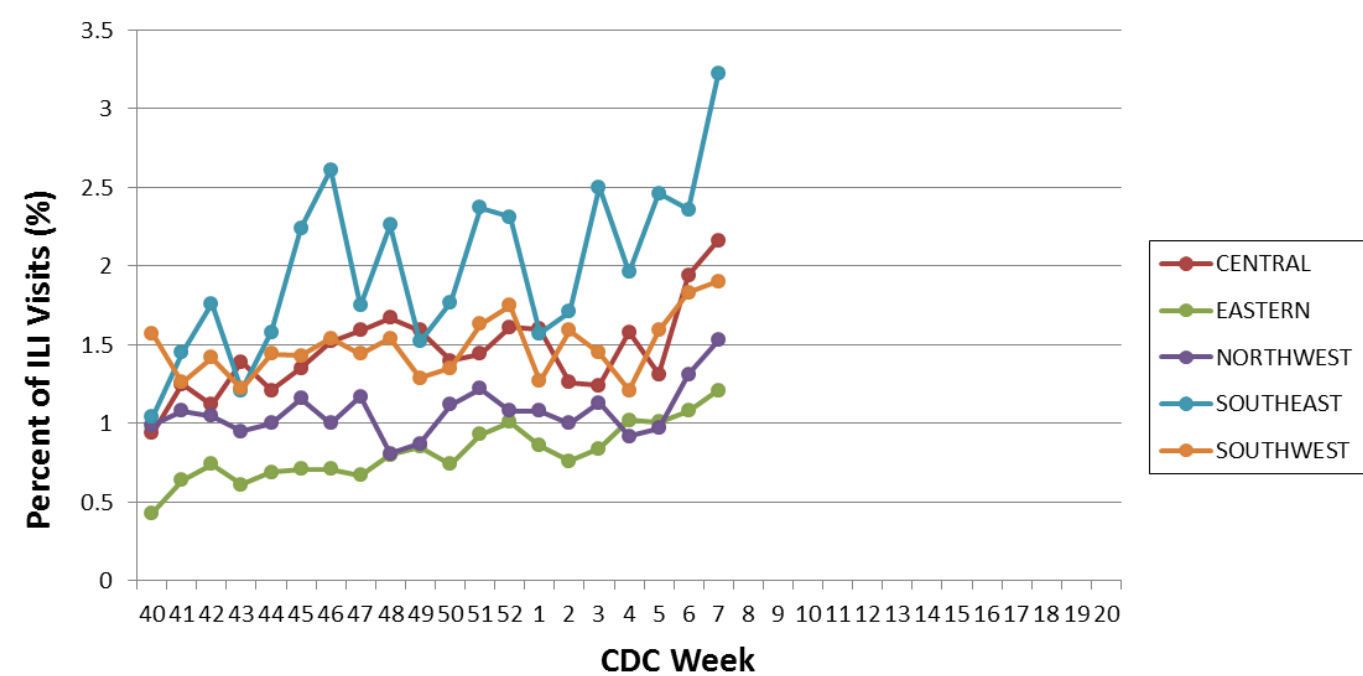
**†**ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending February 20, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.30 | 2.70 | 1.43 | 1.27 | 0.78 | 1.53 |
| Central | 7.01 | 3.04 | 1.96 | 1.22 | 0.61 | 2.16 |
| Eastern | 2.64 | 2.46 | 1.18 | 0.67 | 0.32 | 1.21 |
| Southeast | 12.46 | 8.07 | 1.7 | 1.15 | 0.45 | 3.22 |
| Southwest | 6.52 | 3.90 | 0.99 | 1.09 | 0.49 | 1.9 |
| **Statewide** | **4.17** | **3.15** | **1.33** | **0.99** | **0.51** | **1.62** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending February 20, 2016
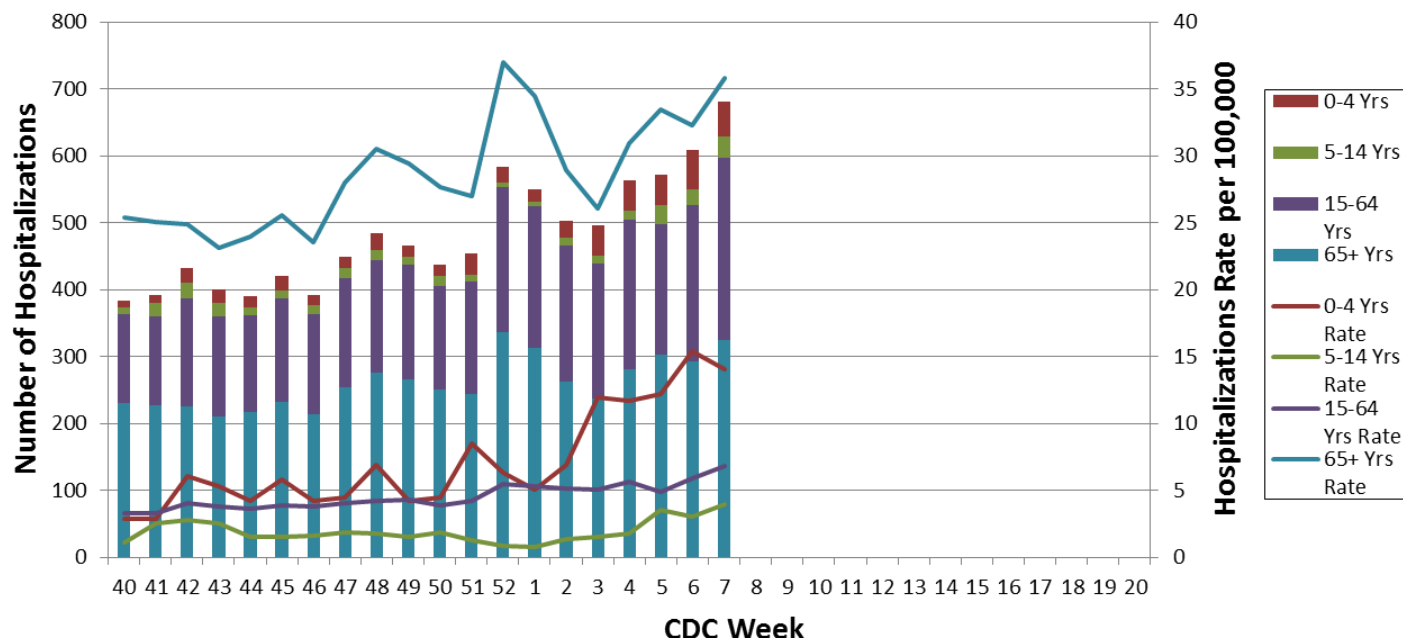


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending February 20, 2016**



Data Source:  Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=f8ca0c06-abe7-44cf-8059-934e4d0f6354**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 8: February 21 – February 27, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri increased to Regional[2].

- A season-to-date total of 3,981 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 73% influenza A, 24% influenza B, and 3% untyped. Influenza A remains the predominant virus type reported this season, accounting for 86% of reported cases during Week 8. The highest season-to-date rates of laboratory-positive influenza cases are among children aged 0-4 years (214 cases per 100,000 population) and children aged 5-14 years (83 cases per 100,000 population). There were four laboratory-confirmed influenza cases (two cases of influenza A (H1N1), two cases of influenza B) reported by the Missouri State Public Health Laboratory (MSPHL) during Week 8.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized three influenza isolates so far this influenza season from Missouri. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus and one virus was antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity was above baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 2.84% and 1.85% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 7, 71 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,306 P&I associated deaths in Missouri[5].

- One influenza or ILI-associated outbreak has been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased in the U.S. during Week 7. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Regional is defined as: Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{o}F$ [$37.8^{o}C$] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* [http://on.mo.gov/1T6bD5W](http://on.mo.gov/1T6bD5W). *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 8**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

### Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 8 (February 21 – February 27, 2016)

| Influenza Type | Week 6 | Week 7 | Week 8 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 450 | 649 | 487 | 2,903 |
| Influenza B | 126 | 196 | 71 | 959 |
| Influenza Unknown Or Untyped | 17 | 14 | 7 | 119 |
| Total | 593 | 859 | 565 | 3,981 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

### Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 8 (February 21 – February 27, 2016)

| Age Group | Week 8 Cases | Week 8 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 115 | 31 | 808 | 214 |
| 05-14 | 109 | 14 | 654 | 83 |
| 15-64 | 312 | 8 | 2,143 | 54 |
| 65+ | 28 | 3 | 375 | 41 |
| Total | 565 | 9 | 3,981 | 66 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 8 (February 21 – February 27, 2016)**
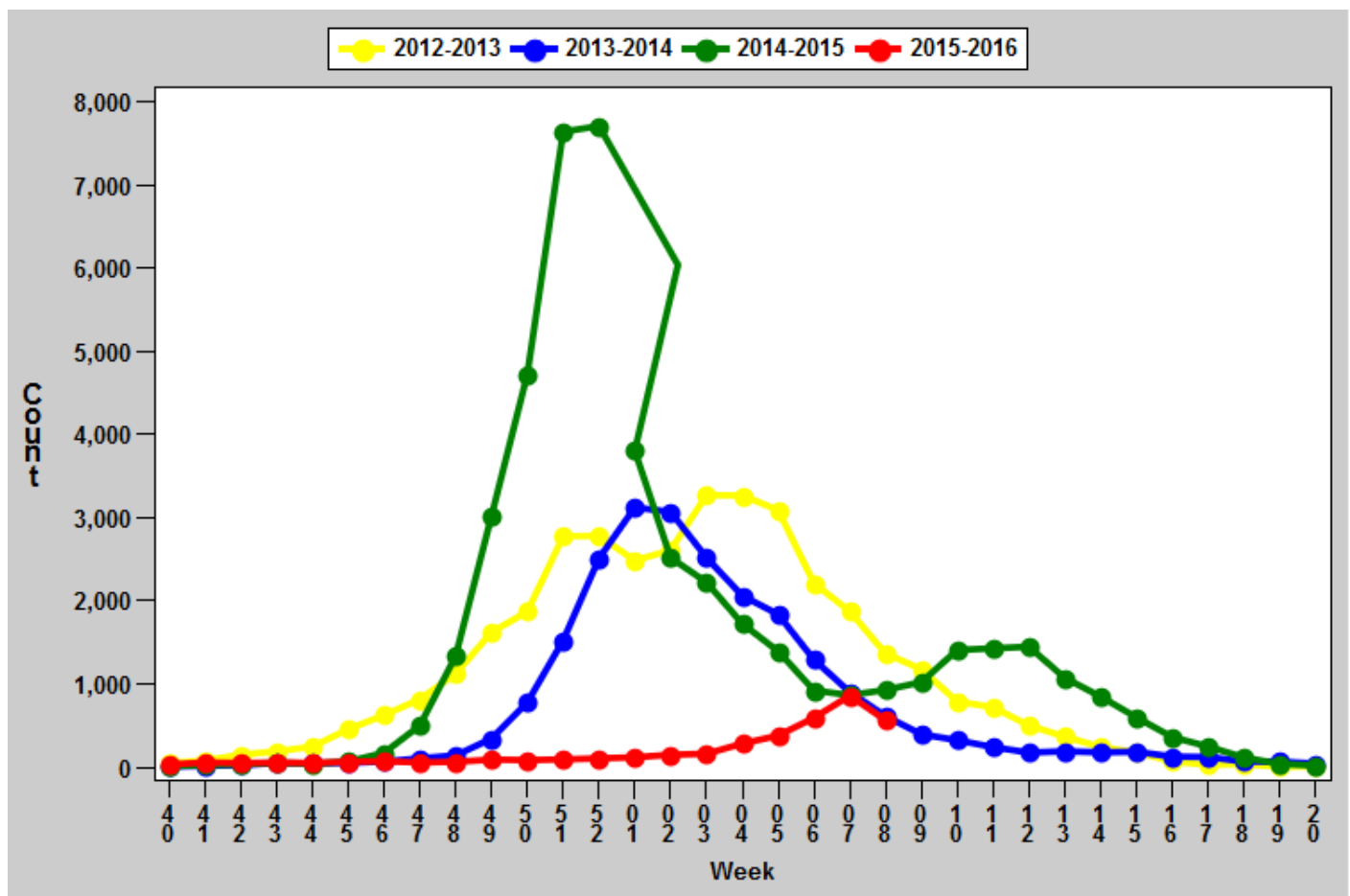
| District | Week 8 Cases | Week 8 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 27 | 4 | 453 | 69 |
| EA | 380 | 17 | 1,738 | 77 |
| NW | 77 | 5 | 1,015 | 64 |
| SE | 27 | 6 | 305 | 64 |
| SW | 54 | 5 | 470 | 44 |
| Total | 565 | 9 | 3,981 | 66 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
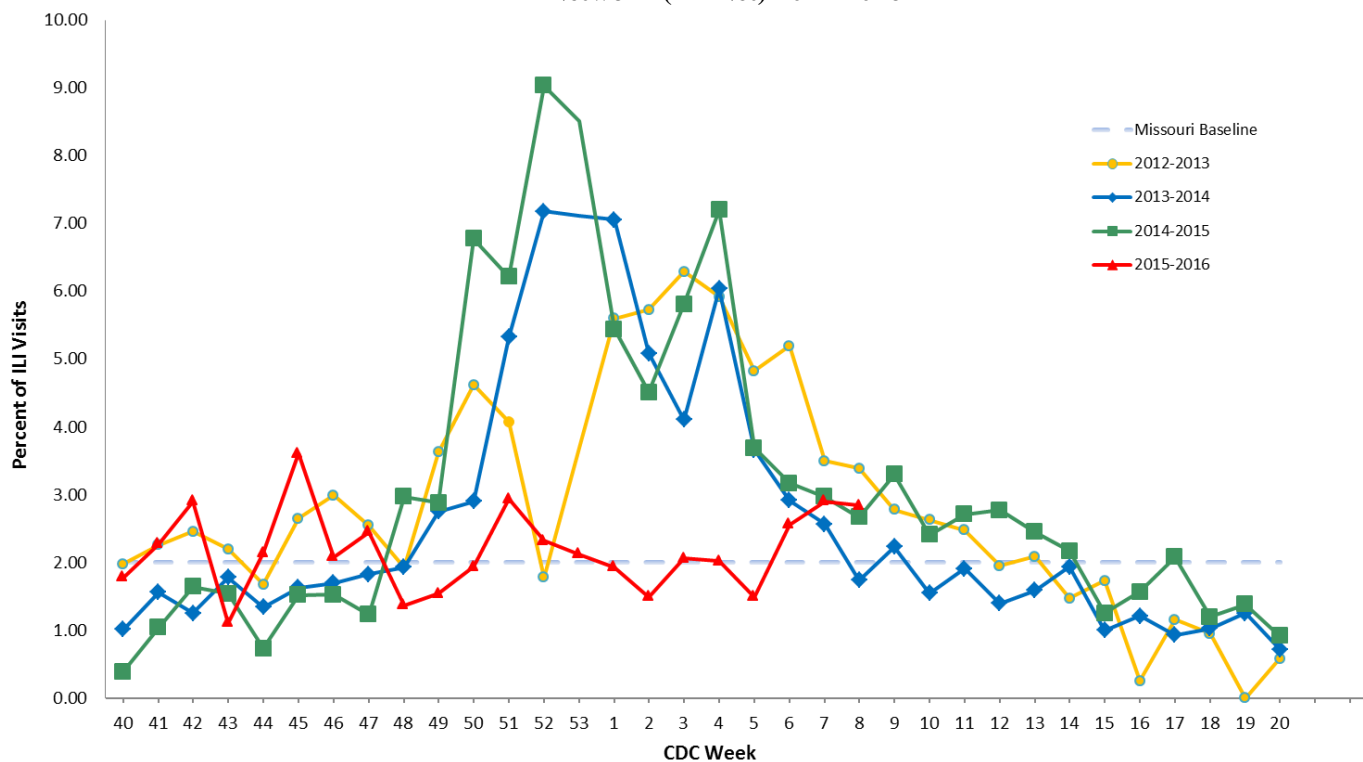[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
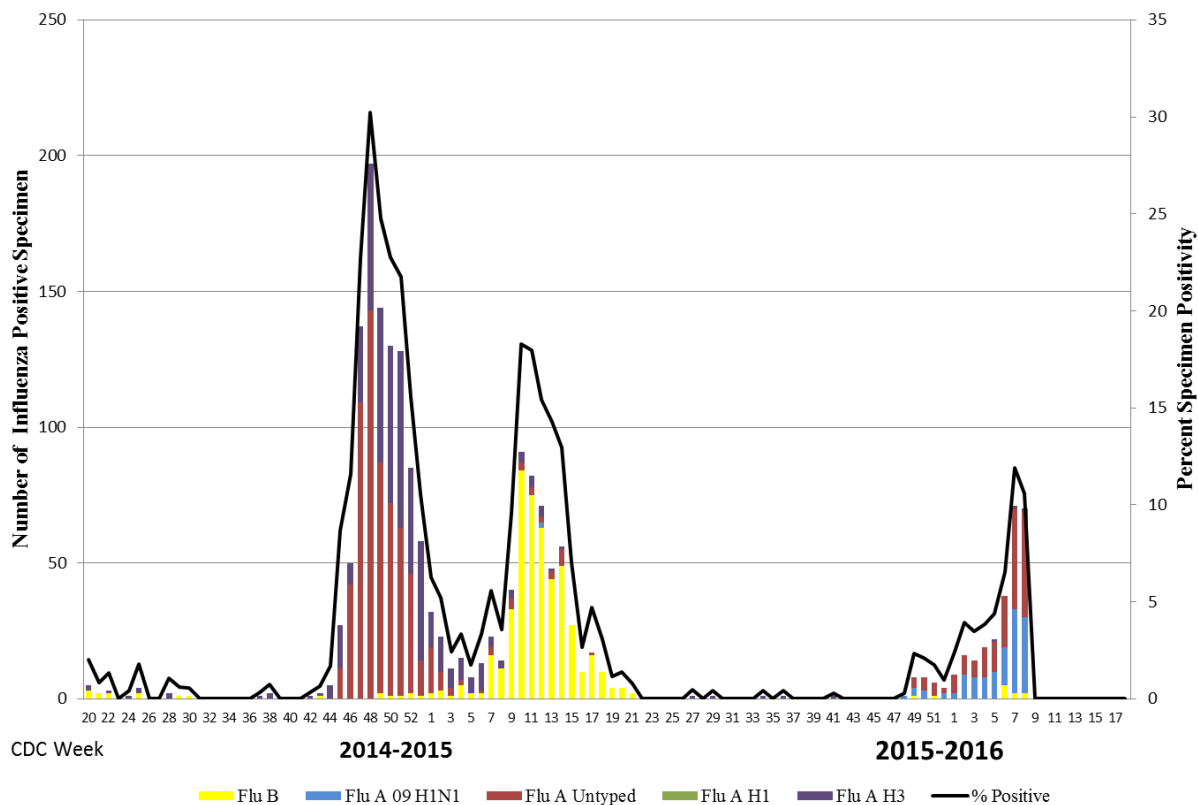*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

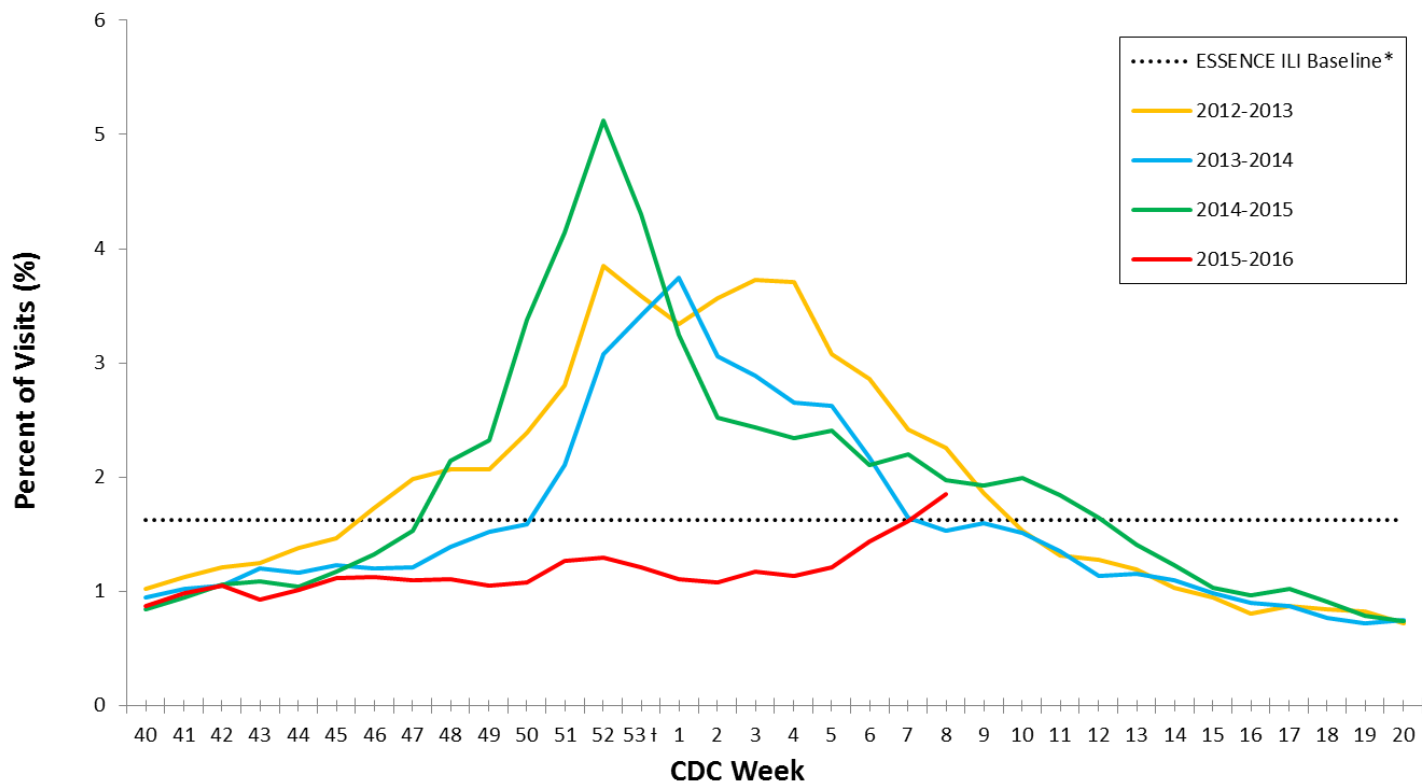## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

## Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
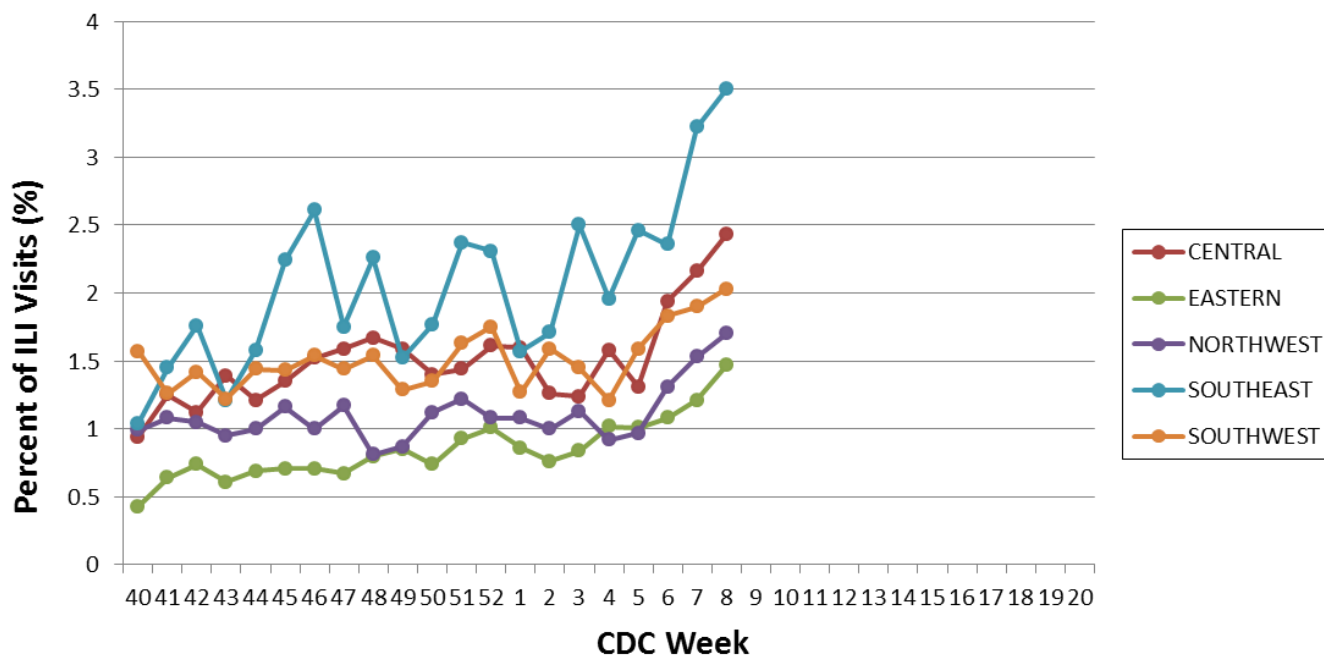
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

## Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending February 27, 2016

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.23 | 2.33 | 1.83 | 1.54 | 0.66 | 1.70 |
| Central | 6.98 | 2.43 | 2.55 | 1.29 | 1.10 | 2.43 |
| Eastern | 3.31 | 2.07 | 1.50 | 1.08 | 0.39 | 1.47 |
| Southeast | 13.24 | 8.39 | 1.58 | 1.30 | 0.64 | 3.50 |
| Southwest | 7.30 | 4.46 | 0.93 | 0.76 | 0.64 | 2.03 |
| Statewide | **4.63** | **3.01** | **1.61** | **1.19** | **0.60** | **1.85** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending February 27, 2016**
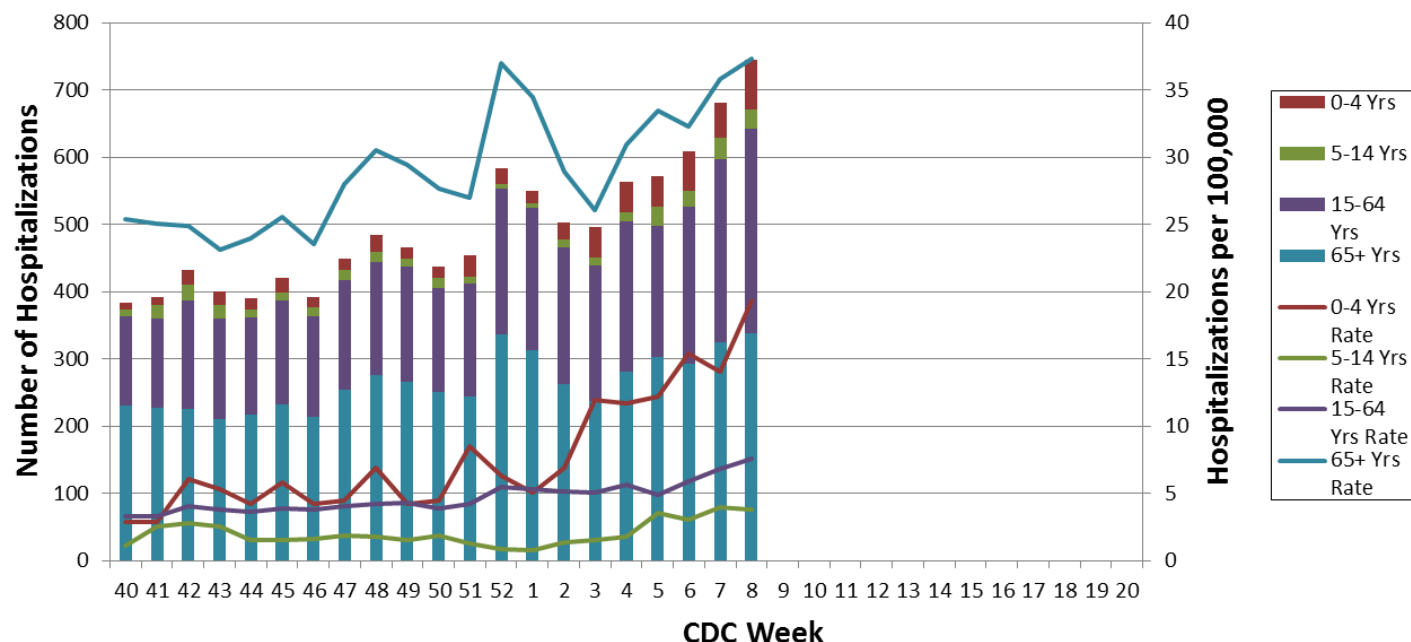


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending February 27, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=1a365e73-1593-44d1-b86f-54b4f478f3e4**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 9: February 28 – March 5, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- Influenza activity increased in Missouri during Week 9 and remained at Regional[2].

- A season-to-date total of 6,884 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 75% influenza A, 22% influenza B, and 3% untyped. Influenza A accounted for 79% of reported cases during Week 9 and remains the predominant virus type reported this season. The highest season-to-date rates of laboratory-positive influenza cases are among children aged 0-4 years (362 cases per 100,000 population) and children aged 5-14 years (164 cases per 100,000 population). There was one laboratory-confirmed influenza A (H1N1) case reported by the Missouri State Public Health Laboratory (MSPHL) during Week 9.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized three influenza isolates so far this influenza season from Missouri. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus and one virus was antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity was above baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE. The reported percentage of visits for ILI was 3.47% and 1.88% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 8, 94 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,400 P&I associated deaths in Missouri[5].

- Two influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity remained elevated in the U.S. during Week 8. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Regional is defined as: Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100$^{\circ}$F [37.8$^{\circ}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1Lbtlma. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 9**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 9 (February 28 – March 5, 2016)**

| Influenza Type | Week 7 | Week 8 | Week 9 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 757 | 1,188 | 1,392 | 5,152 |
| Influenza B | 231 | 261 | 332 | 1,540 |
| Influenza Unknown Or Untyped | 24 | 39 | 32 | 192 |
| Total | 1,012 | 1,488 | 1,756 | 6,884 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 9 (February 28 – March 5, 2016)**

| Age Group | Week 9 Cases | Week 9 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 348 | 92 | 1,365 | 362 |
| 05-14 | 386 | 49 | 1,285 | 164 |
| 15-64 | 898 | 23 | 3,654 | 92 |
| 65+ | 124 | 14 | 579 | 64 |
| Total | 1,756 | 29 | 6,884 | 114 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 9 (February 28 – March 5, 2016)**
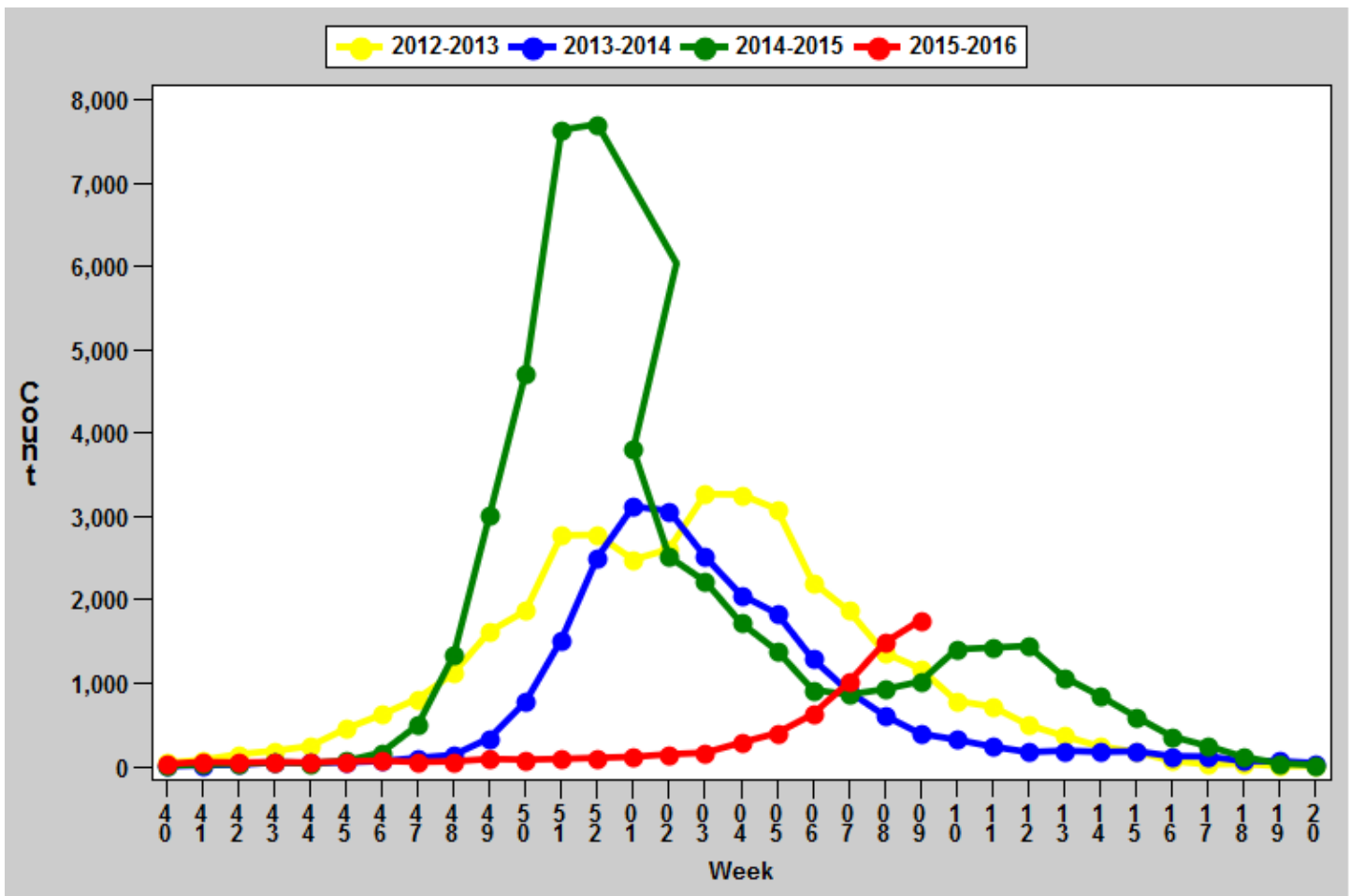
| District | Week 9 Cases | Week 9 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|----------|--------------|----------------|---------------------------|-----------------------------------|
| CE | 234 | 35 | 832 | 126 |
| EA | 608 | 27 | 2,578 | 115 |
| NW | 670 | 42 | 2,188 | 138 |
| SE | 43 | 9 | 412 | 86 |
| SW | 201 | 19 | 874 | 82 |
| Total | 1,756 | 29 | 6,884 | 114 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
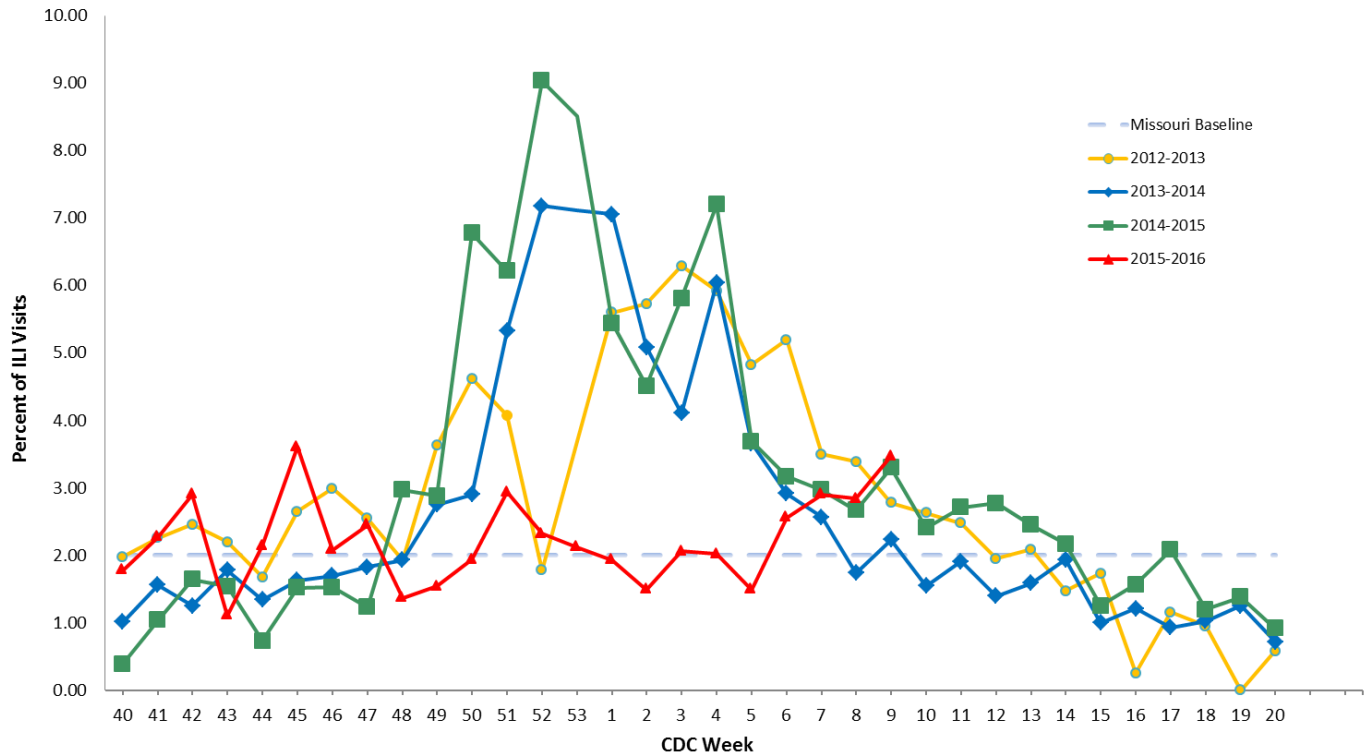[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
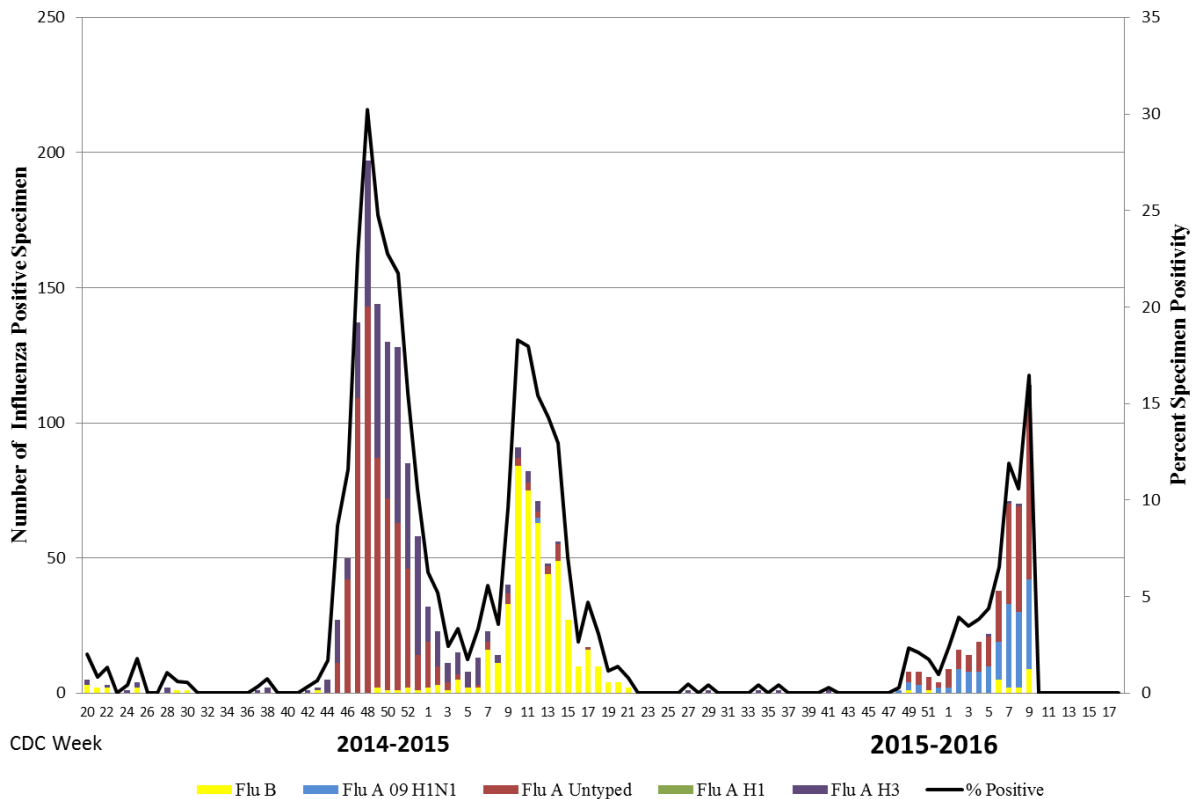*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

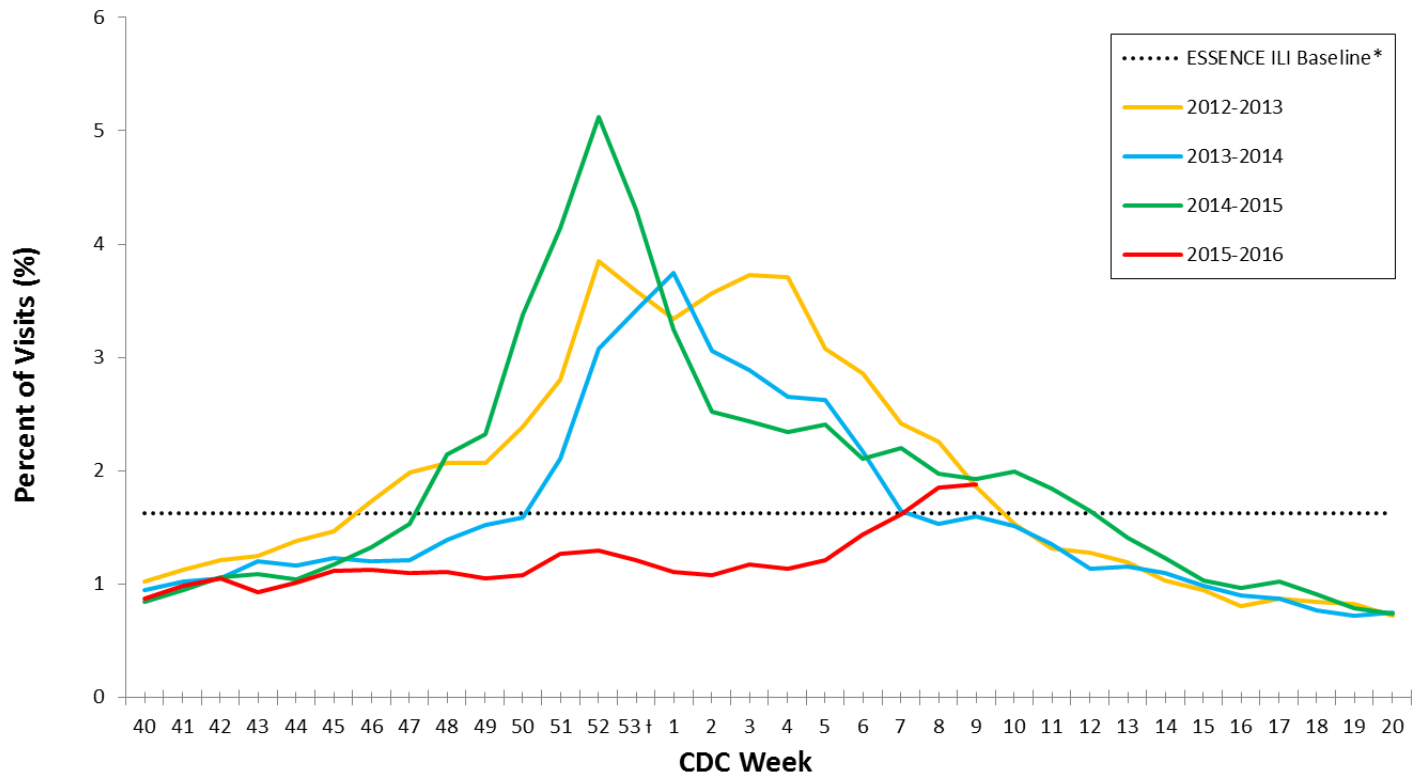**Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source: St. Louis Children's Hospitals

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
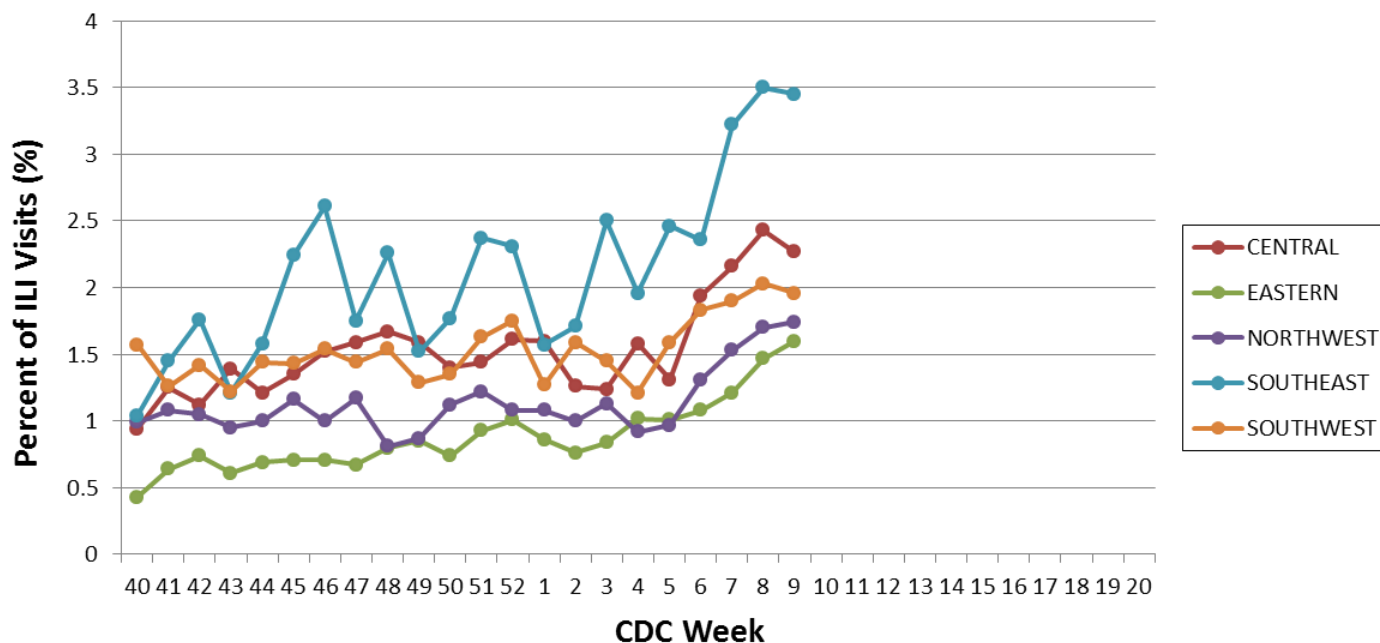†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending March 5, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.74 | 3.18 | 1.59 | 1.34 | 0.72 | 1.74 |
| Central | 6.96 | 3.76 | 1.88 | 1.34 | 0.53 | 2.27 |
| Eastern | 3.07 | 2.96 | 1.51 | 1.20 | 0.54 | 1.60 |
| Southeast | 13.59 | 8.04 | 1.62 | 1.40 | 0.82 | 3.45 |
| Southwest | 6.97 | 4.54 | 0.56 | 1.33 | 0.65 | 1.96 |
| **Statewide** | **4.59** | **3.69** | **1.42** | **1.28** | **0.62** | **1.88** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending March 5, 2016**
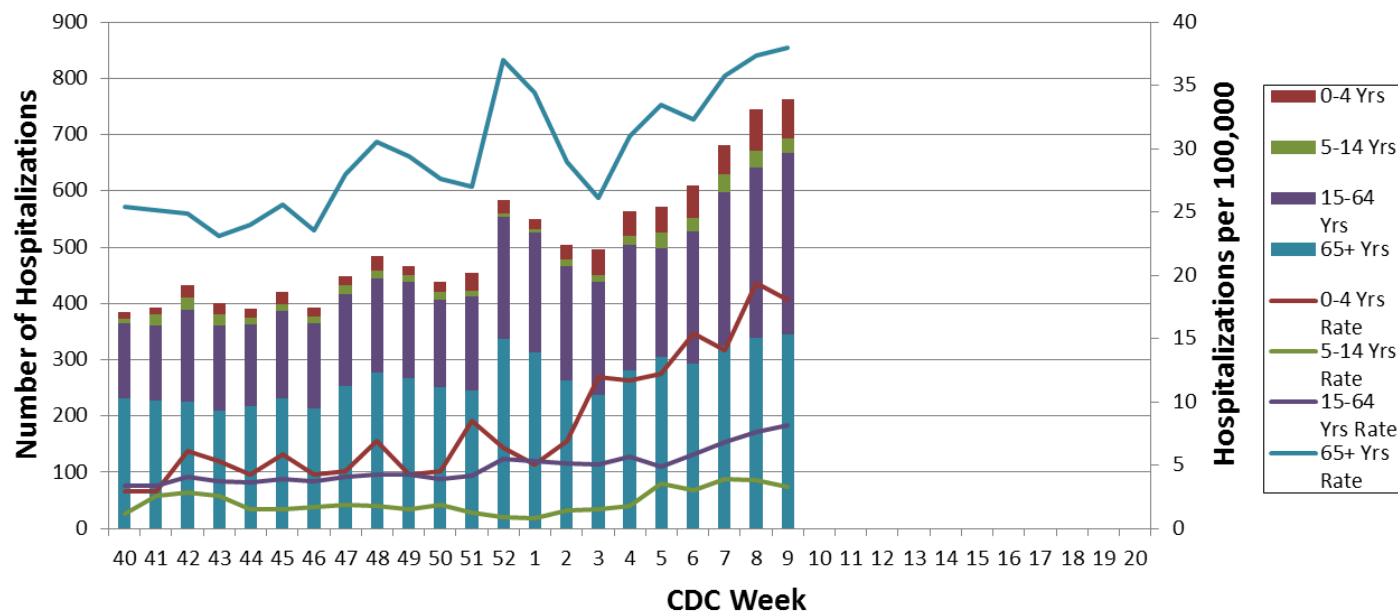


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending March 5, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=9c76310f-bdee-4057-a987-b13c6b2d1c89**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 10: March 6 – March 12, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri increased to Widespread[2].

- A season-to-date total of 9,217 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 76% influenza A, 21% influenza B, and 3% untyped. Influenza A accounted for 79% of reported cases during Week 10 and remains the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (486 cases per 100,000 population) and children aged 5-14 years (237 cases per 100,000 population). Three laboratory-confirmed influenza cases (two influenza A (H1N1), one influenza B) were reported by the Missouri State Public Health Laboratory (MSPHL) during Week 10.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized four influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus and two viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity was above baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE during Week 10. The reported percentage of visits for ILI was 3.40% and 2.08% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 9, 79 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,480 P&I associated deaths in Missouri[5].

- Two influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity remained elevated in the U.S. during Week 9. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Widespread is defined as: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state with recent laboratory evidence of influenza in the state.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^{\circ}$F [$37.8^{\circ}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1nLkIDj. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 10**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 10 (March 6 – March 12, 2016)**

| Influenza Type | Week 8 | Week 9 | Week 10 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 1,205 | 1,551 | 1,637 | 6,992 |
| Influenza B | 269 | 377 | 379 | 1,973 |
| Influenza Unknown Or Untyped | 39 | 41 | 51 | 252 |
| Total | 1,513 | 1,969 | 2,067 | 9,217 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 10 (March 6 – March 12, 2016)**

| Age Group | Week 10 Cases | Week 10 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 424 | 113 | 1,832 | 486 |
| 05-14 | 490 | 62 | 1,860 | 237 |
| 15-64 | 1,005 | 25 | 4,784 | 120 |
| 65+ | 148 | 16 | 741 | 82 |
| Total | 2,067 | 34 | 9,217 | 152 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

## Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 10 (March 6 – March 12, 2016)
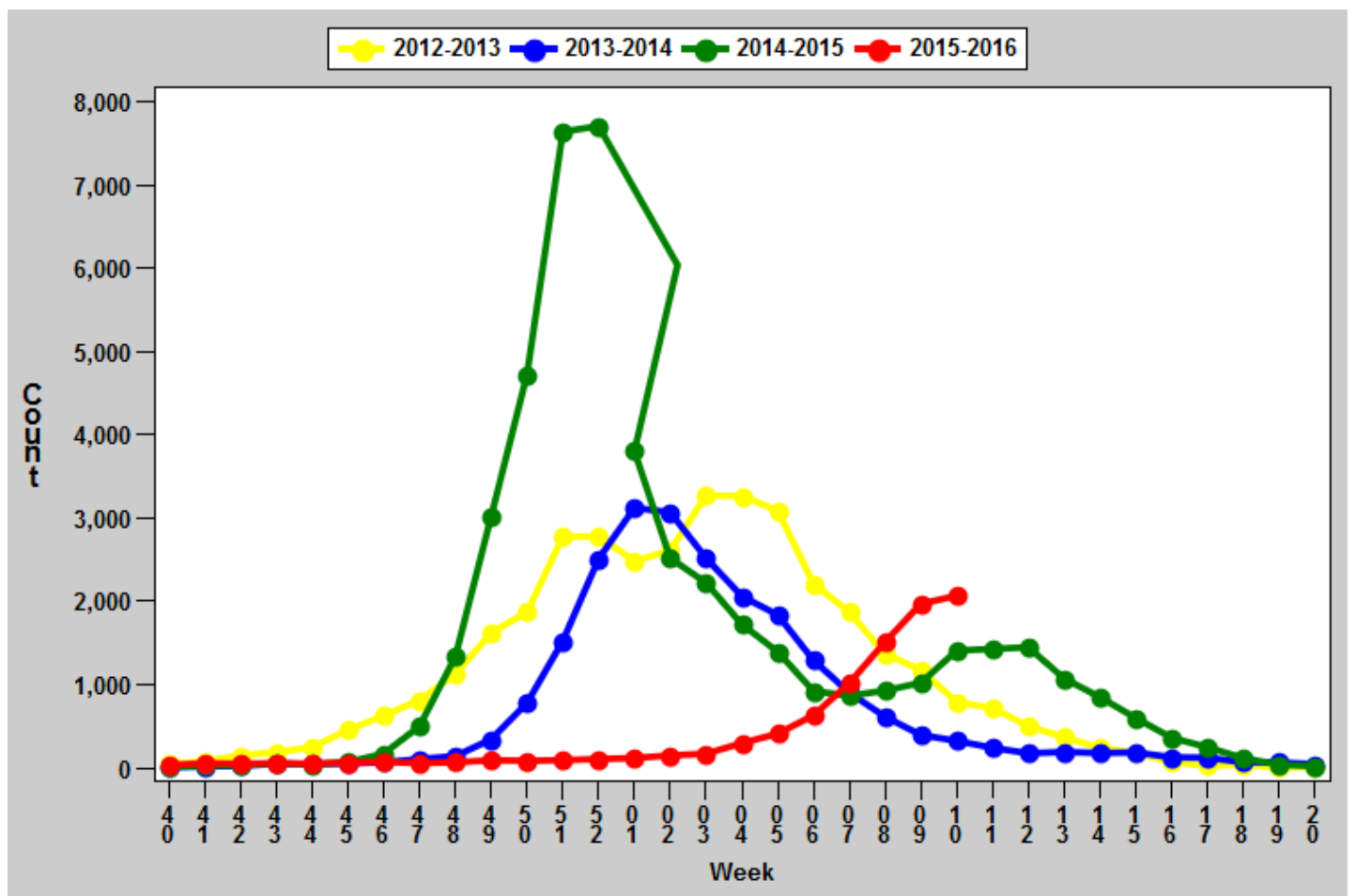
| District | Week 10 Cases | Week 10 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 153 | 23 | 1,025 | 155 |
| EA | 708 | 31 | 3,321 | 148 |
| NW | 861 | 54 | 3,173 | 200 |
| SE | 111 | 23 | 559 | 117 |
| SW | 234 | 22 | 1,139 | 106 |
| Total | 2,067 | 34 | 9,217 | 152 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
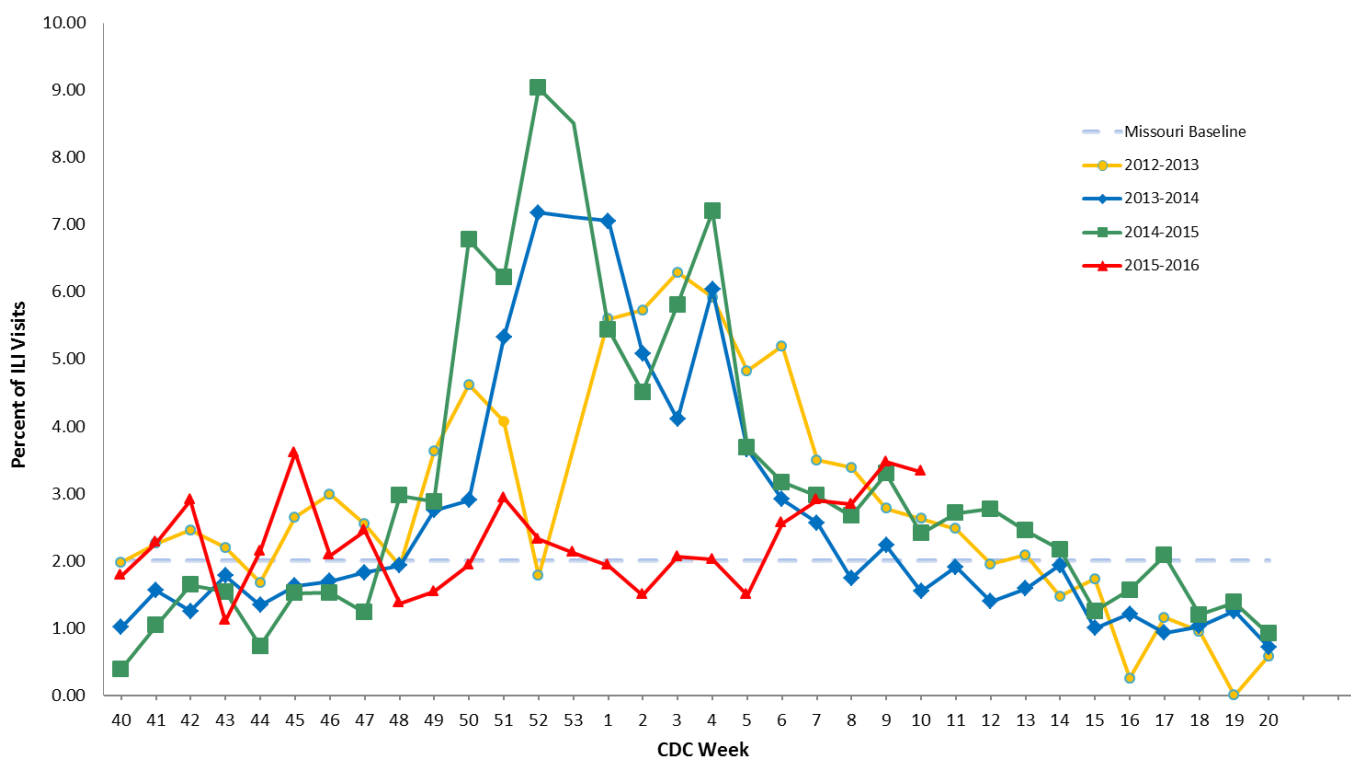[‡] Incidence Rate per 100,000 population

## Graph 1.  Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016*



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
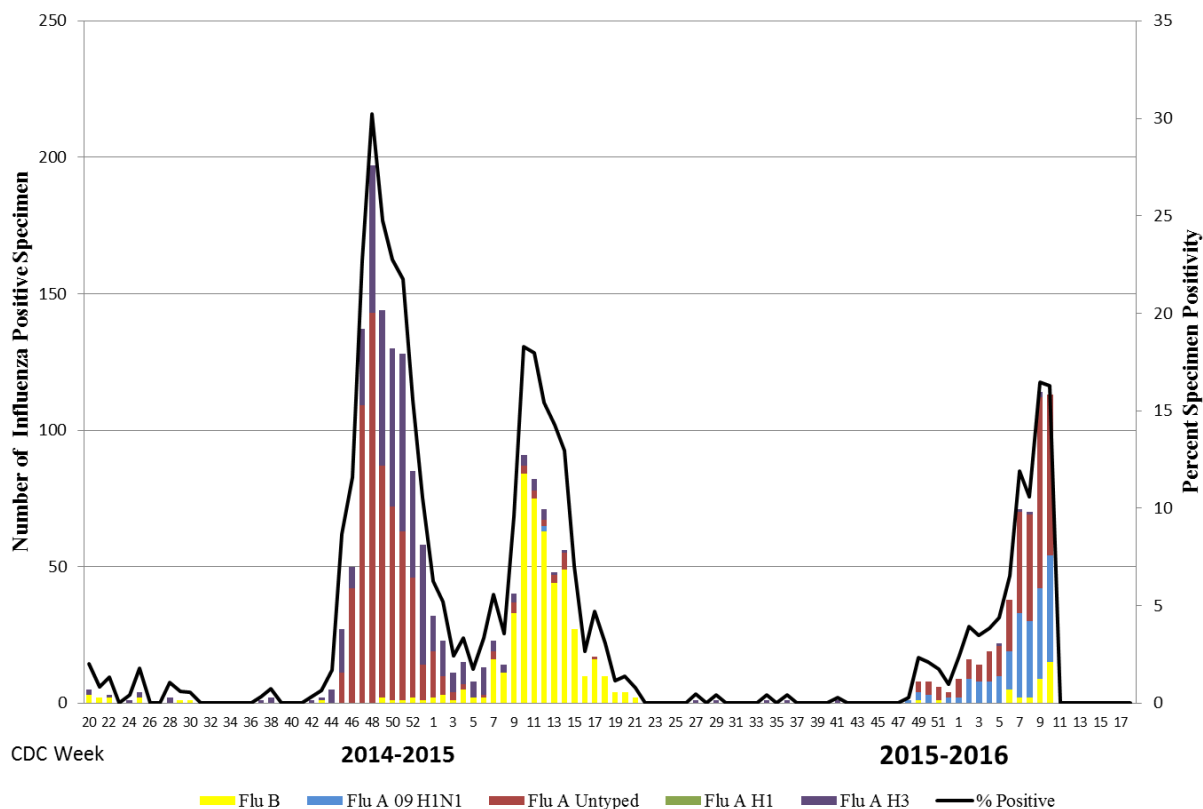*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

**Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016***



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

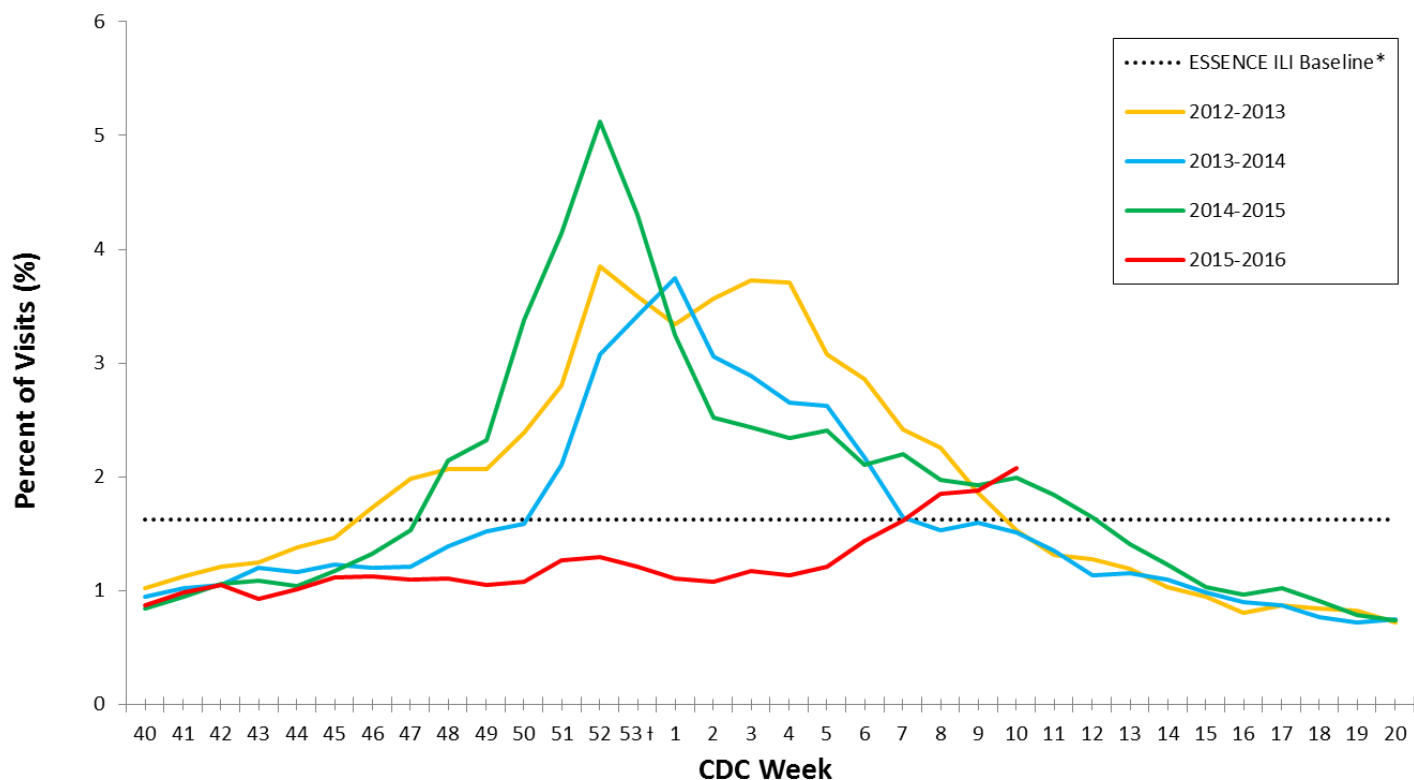**Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests**



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

# Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
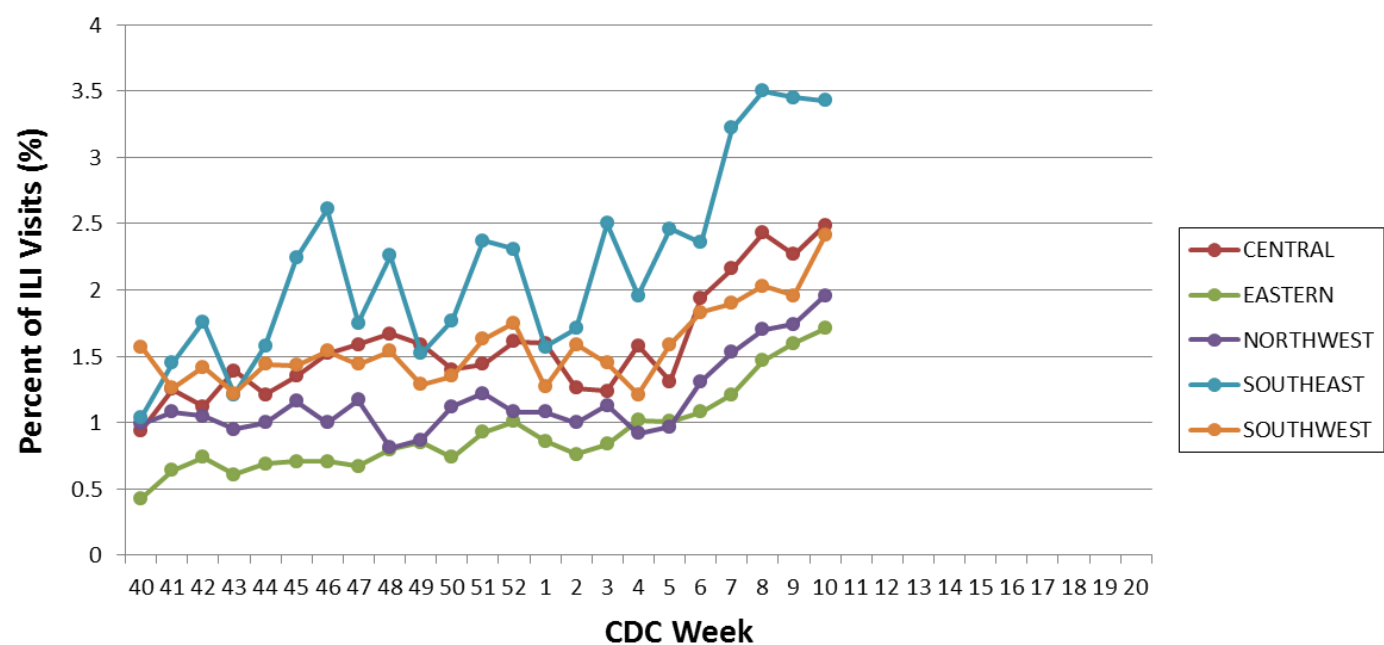†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

# Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending March 12, 2016

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|----------|---------|----------|-----------|-----------|---------|------------------|
| Northwest | 3.46 | 3.26 | 1.66 | 1.78 | 0.77 | 1.96 |
| Central | 7.19 | 4.59 | 1.92 | 1.90 | 0.52 | 2.49 |
| Eastern | 3.38 | 1.8 | 1.83 | 1.71 | 0.50 | 1.71 |
| Southeast | 10.85 | 8.13 | 1.85 | 1.82 | 1.38 | 3.43 |
| Southwest | 7.75 | 5.29 | 1.49 | 1.30 | 0.65 | 2.41 |
| **Statewide** | **4.93** | **3.46** | **1.74** | **1.69** | **0.66** | **2.08** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending March 12, 2016**
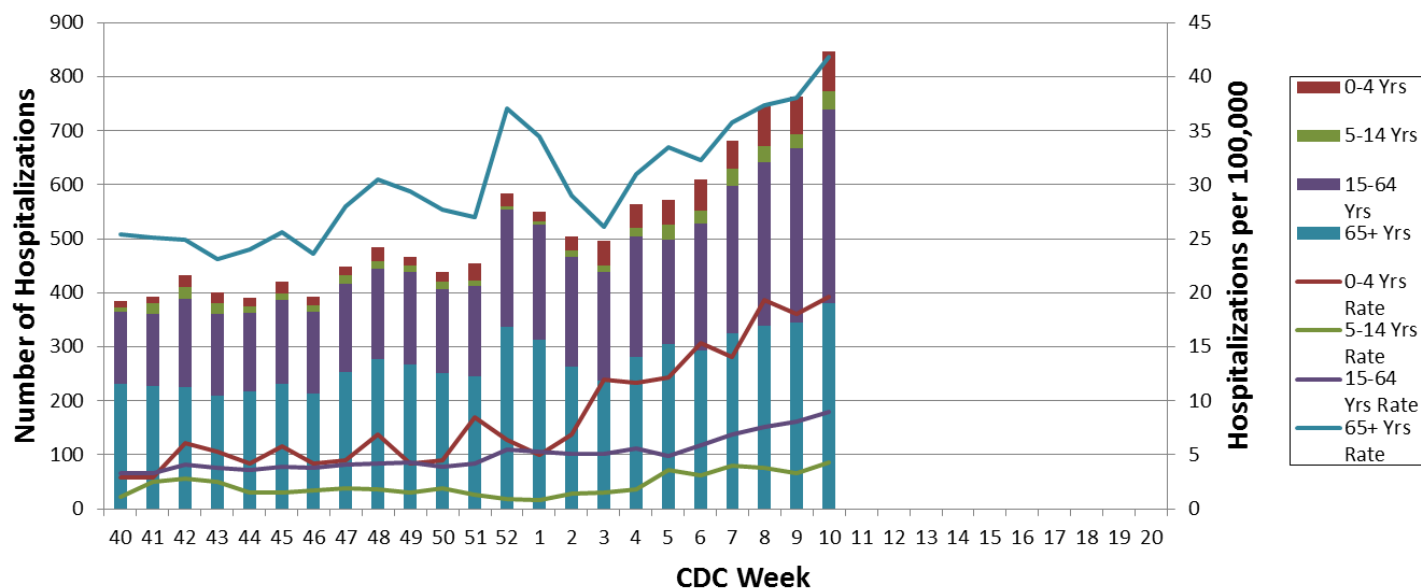


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending March 12, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=9c76310f-bdee-4057-a987-b13c6b2d1c89**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 11: March 13 – March 19, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri remained at Widespread[2] for the second consecutive week.

- A season-to-date total of 11,300 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 76% influenza A, 21% influenza B, and 3% untyped. Influenza A accounted for 78% of reported cases during Week 11 and remains the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (597 cases per 100,000 population) and children aged 5-14 years (295 cases per 100,000 population). One laboratory-confirmed influenza cases of influenza A (H1N1) was reported by the Missouri State Public Health Laboratory (MSPHL) during Week 11.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized six influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus and four viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity was above baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and for the hospital emergency room visit chief complaint data reported through ESSENCE during Week 11. The reported percentage of visits for ILI was 3.03% and 1.66% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 10, 70 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,550 P&I associated deaths in Missouri[5].

- Three influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity increased in the U.S. during Week 10. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Widespread is defined as: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state with recent laboratory evidence of influenza in the state.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of $100^o$F [$37.8^o$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/22w10yC. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 11**

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**

- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 11 (March 3 – March 19, 2016)**

| Influenza Type | Week 9 | Week 10 | Week 11 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 1,586 | 1,998 | 1,163 | 8,565 |
| Influenza B | 391 | 515 | 299 | 2,422 |
| Influenza Unknown Or Untyped | 42 | 61 | 25 | 313 |
| Total | 2,019 | 2,574 | 1,487 | 11,300 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 11 (March 3 – March 19, 2016)**

| Age Group | Week 11 Cases | Week 11 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 318 | 84 | 2,249 | 597 |
| 05-14 | 321 | 41 | 2,310 | 295 |
| 15-64 | 748 | 19 | 5,844 | 147 |
| 65+ | 100 | 11 | 897 | 99 |
| Total | 1,487 | 25 | 11,300 | 187 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 11 (March 3 – March 19, 2016)**
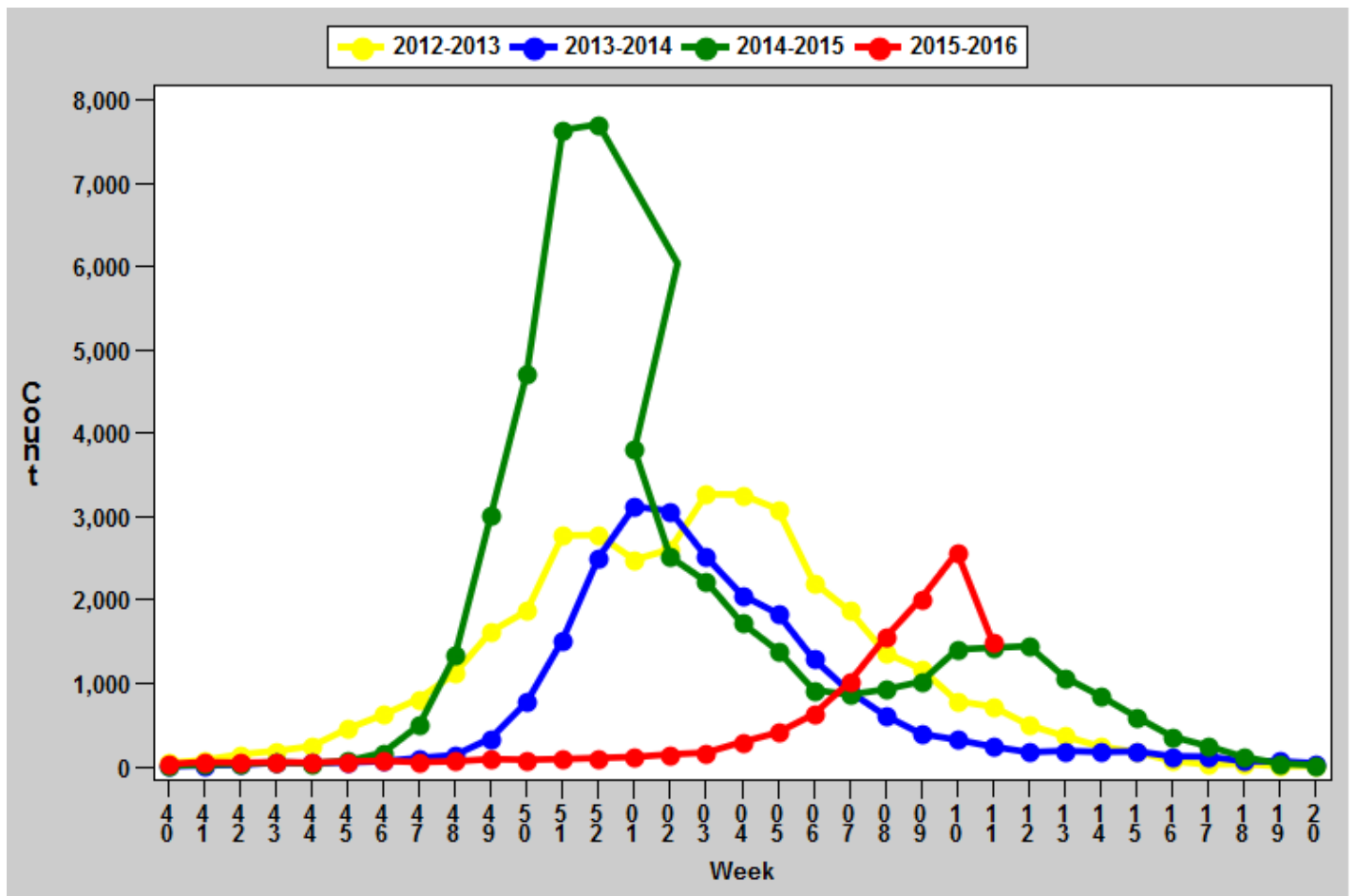
| District | Week 11 Cases | Week 11 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|----------|--------------|-----------------|---------------------------|-----------------------------------|
| CE | 110 | 17 | 1,306 | 198 |
| EA | 804 | 36 | 4,232 | 188 |
| NW | 336 | 21 | 3,687 | 233 |
| SE | 145 | 30 | 743 | 156 |
| SW | 92 | 9 | 1,332 | 124 |
| Total | 1,487 | 25 | 11,300 | 187 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
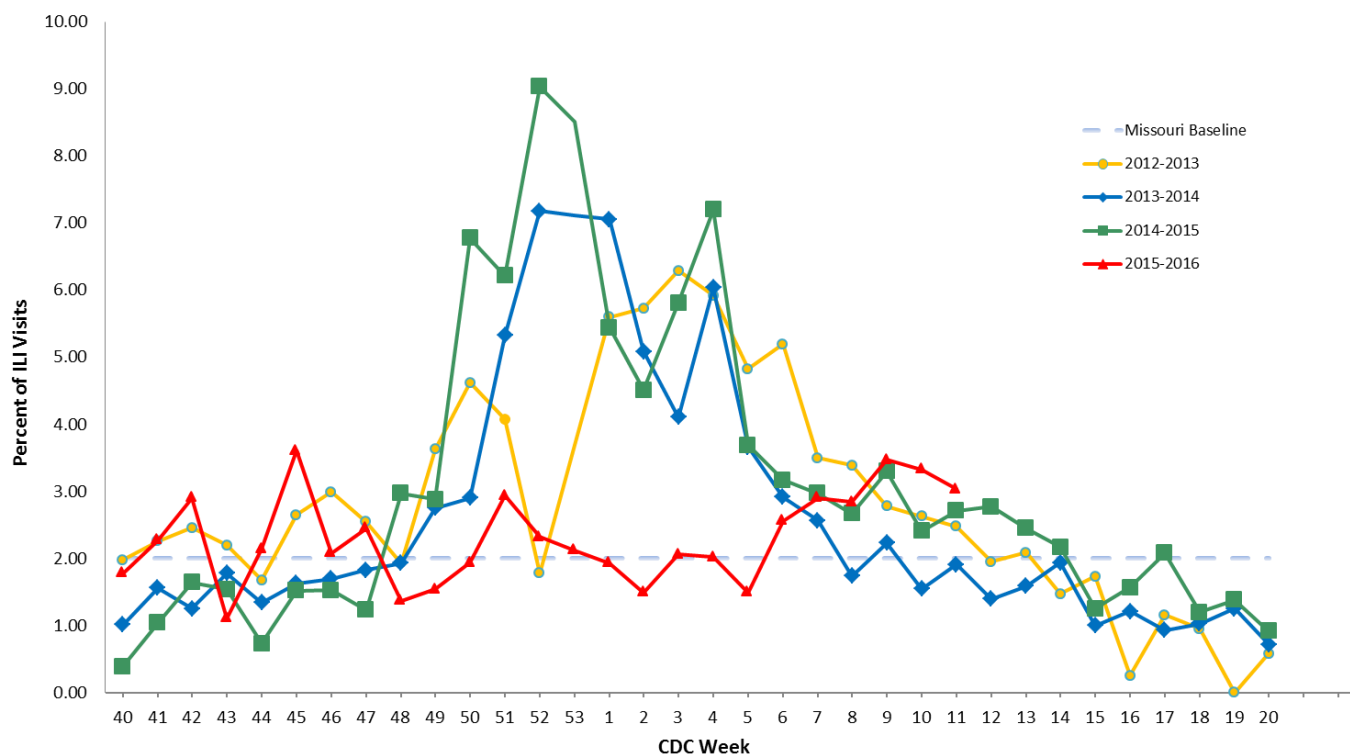
[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
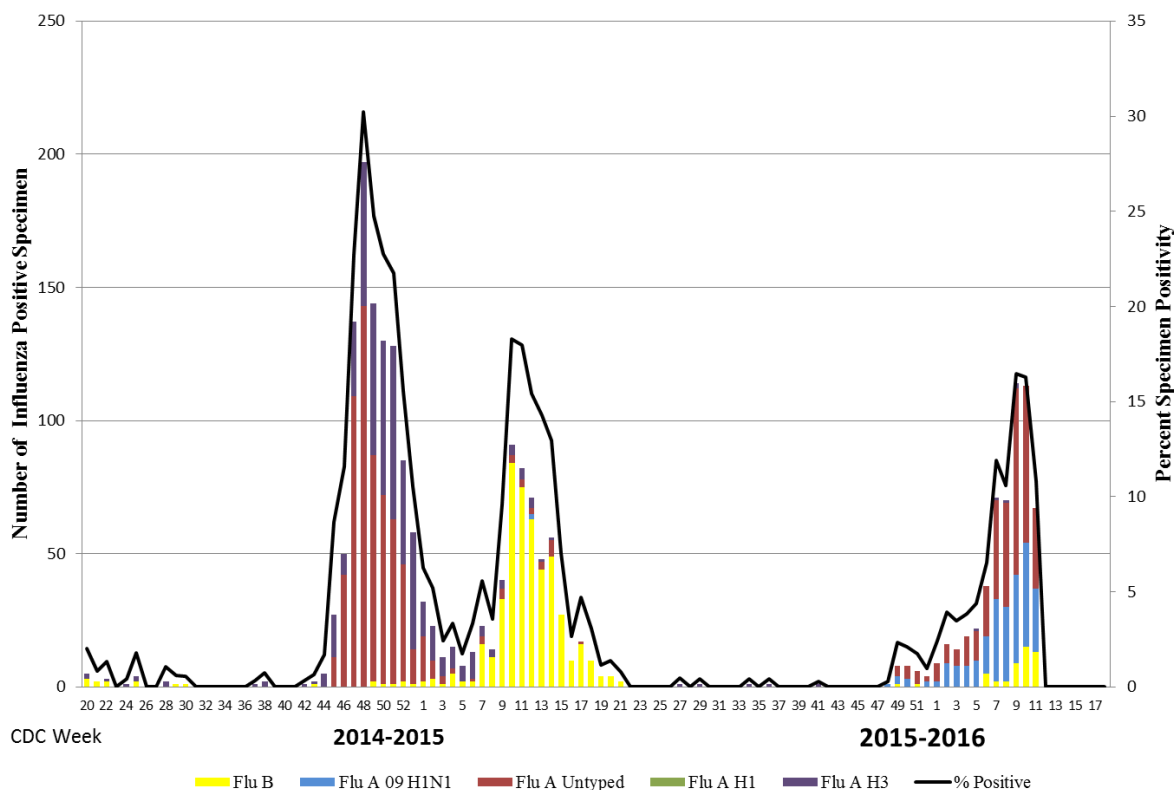
*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

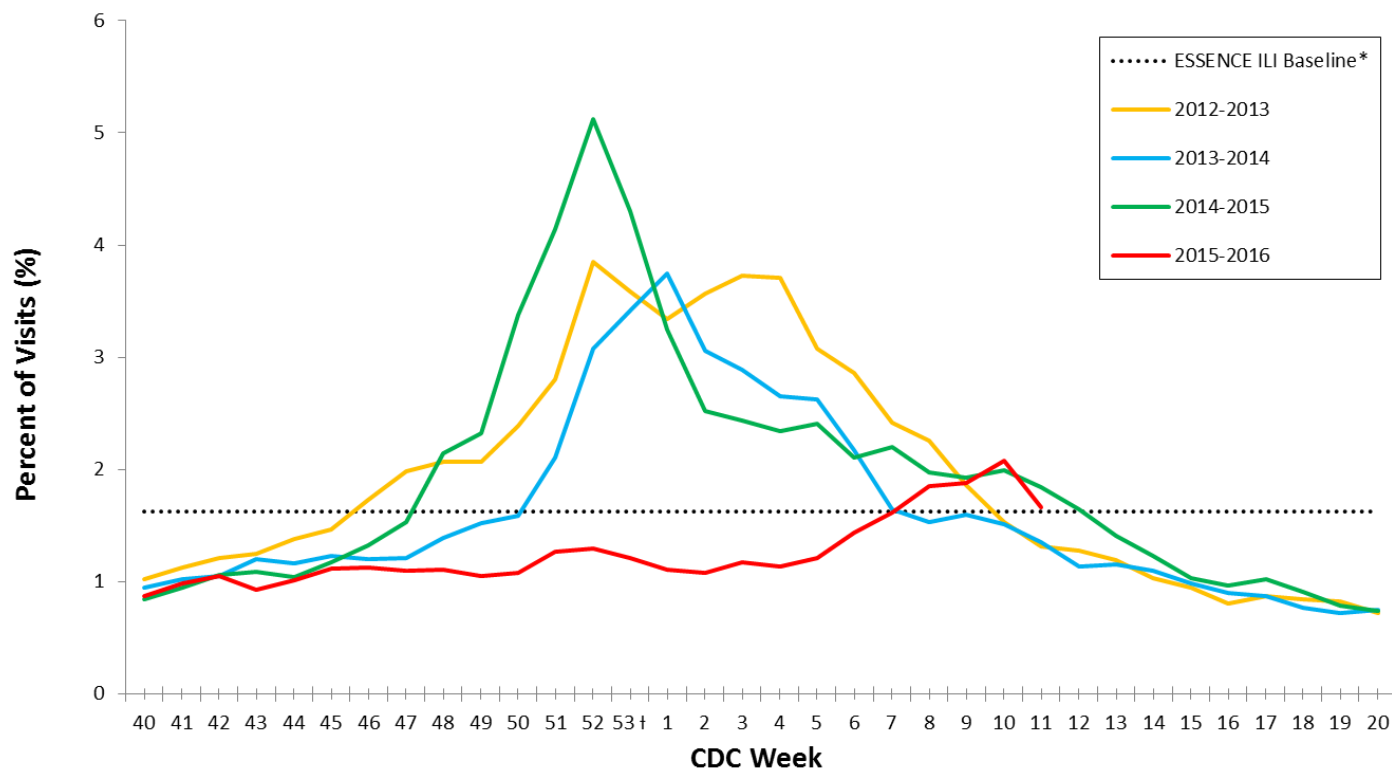## Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
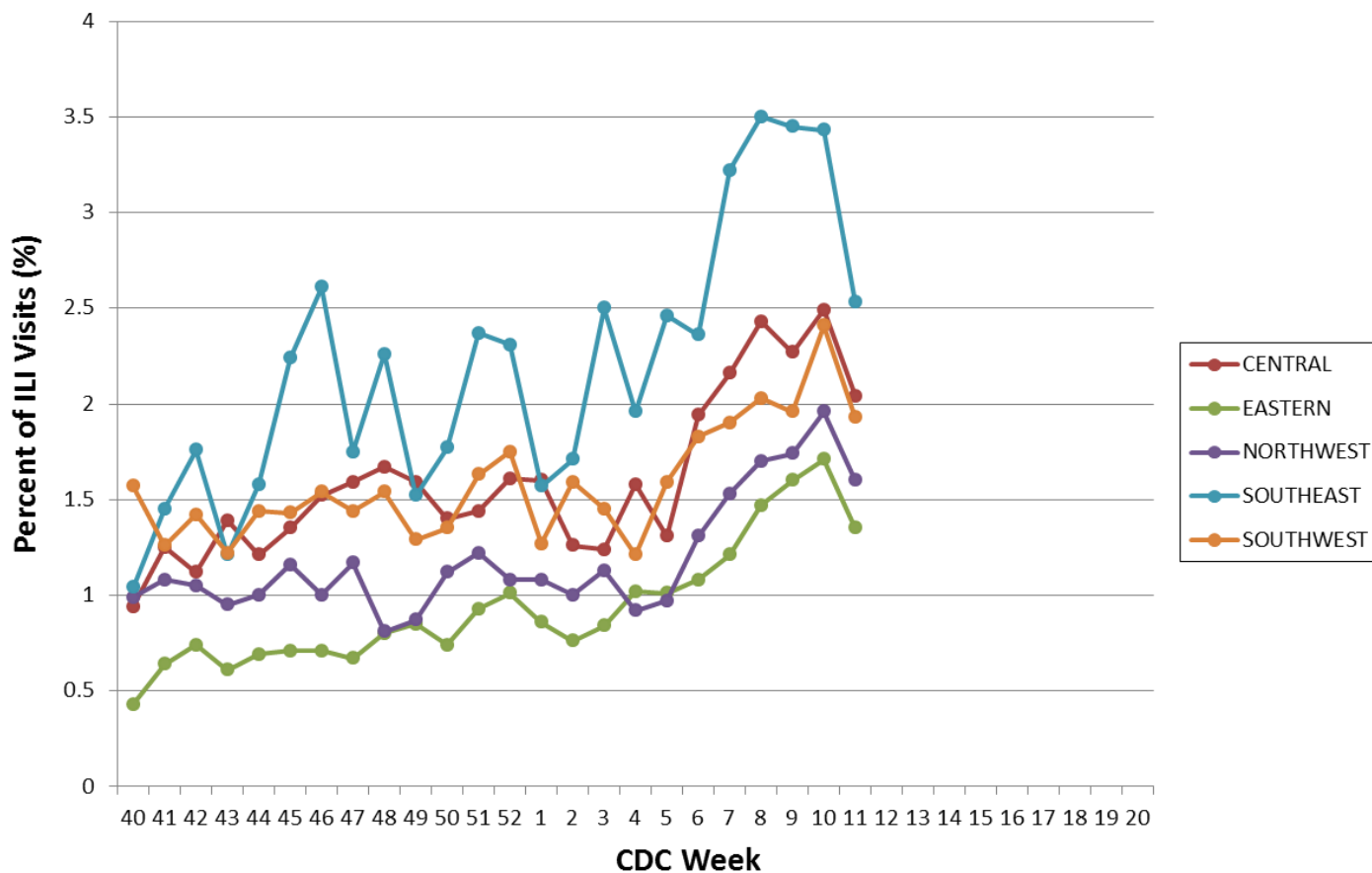
† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending March 19, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.61 | 2.77 | 1.52 | 1.54 | 0.37 | 1.60 |
| Central | 6.27 | 1.70 | 1.85 | 1.60 | 0.88 | 2.04 |
| Eastern | 3.26 | 1.84 | 1.26 | 1.24 | 0.42 | 1.35 |
| Southeast | 9.58 | 5.62 | 1.59 | 0.94 | 1.23 | 2.53 |
| Southwest | 6.60 | 4.17 | 1.25 | 0.88 | 0.61 | 1.93 |
| **Statewide** | **4.21** | **2.76** | **1.42** | **1.28** | **0.56** | **1.66** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending March 19, 2016**
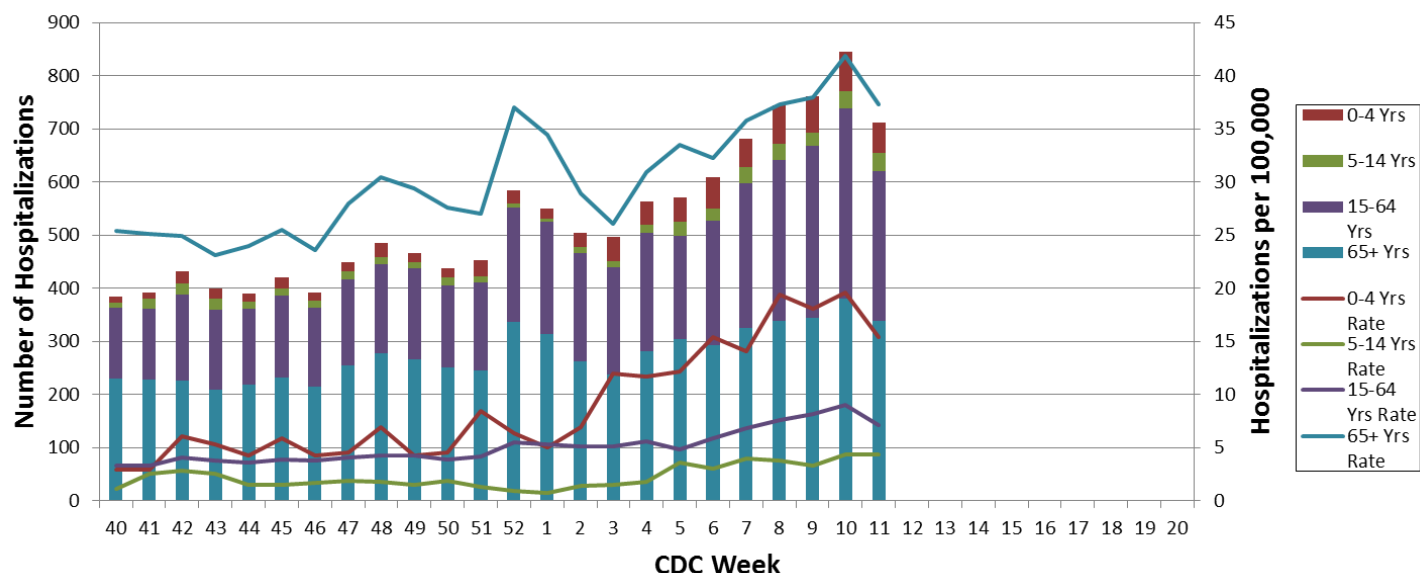


Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending March 19, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=84386e6f-8f61-4fdf-8808-44f7559c6357**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 12: March 20 – March 26, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri remained at Widespread[2].

- A season-to-date total of 13,598 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 75% influenza A, 23% influenza B, and 2% untyped. Influenza A accounted for 72% of reported cases during Week 12 and remains the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (713 cases per 100,000 population) and children aged 5-14 years (362 cases per 100,000 population). One laboratory-confirmed influenza cases of influenza B was reported by the Missouri State Public Health Laboratory (MSPHL) during Week 12.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized seven influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus and five viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere vaccine formulation.

- Influenza-like illness activity was above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE during Week 12. The reported percentage of visits for ILI was 3.22% and 1.54% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 11, 67 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,617 P&I associated deaths in Missouri[5].

- Three influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased slightly, but remained elevated in the U.S. during Week 11. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Widespread is defined as: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state with recent laboratory evidence of influenza in the state.

[3]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like Illness (ILI) is defined by ILINet as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like Illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at [http://on.mo.gov/1VTBUEw](http://on.mo.gov/1VTBUEw). Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 12**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

### Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 12 (March 20 – March 26, 2016)

| Influenza Type | Week 10 | Week 11 | Week 12 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 2,078 | 1,752 | 919 | 10,208 |
| Influenza B | 537 | 550 | 351 | 3,058 |
| Influenza Unknown Or Untyped | 68 | 52 | 11 | 332 |
| Total | 2,683 | 2,354 | 1,281 | 13,598 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

### Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 12 (March 20 – March 26, 2016)

| Age Group | Week 12 Cases | Week 12 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 243 | 64 | 2,688 | 713 |
| 05-14 | 284 | 36 | 2,840 | 362 |
| 15-64 | 646 | 16 | 6,979 | 176 |
| 65+ | 108 | 12 | 1,091 | 120 |
| Total | 1,281 | 21 | 13,598 | 225 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 12 (March 20 – March 26, 2016)**
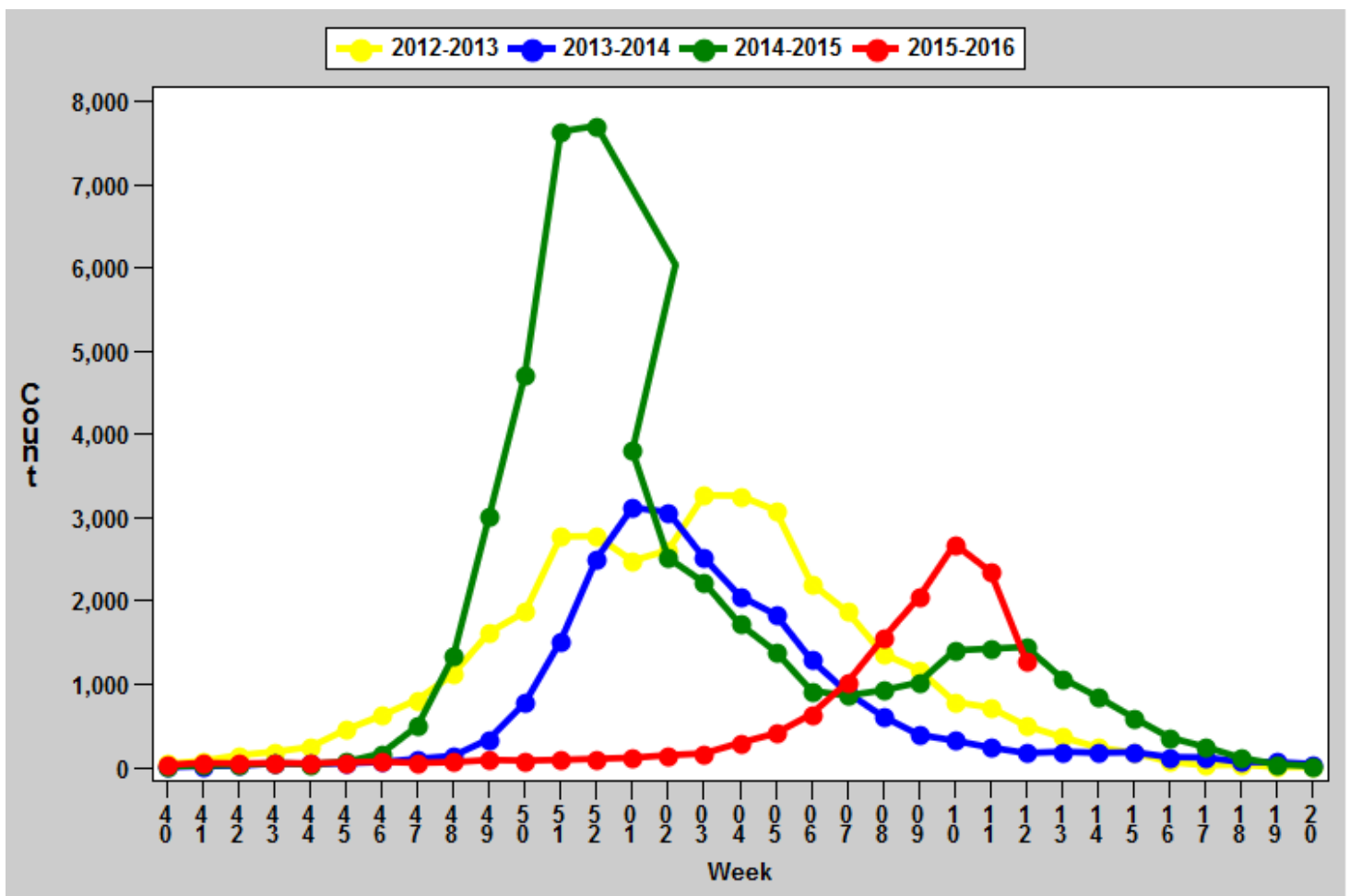
| District | Week 12 Cases | Week 12 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 124 | 19 | 1,589 | 241 |
| EA | 467 | 21 | 4,760 | 212 |
| NW | 383 | 24 | 4,720 | 298 |
| SE | 89 | 19 | 879 | 184 |
| SW | 218 | 20 | 1,650 | 154 |
| Total | 1,281 | 21 | 13,598 | 225 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
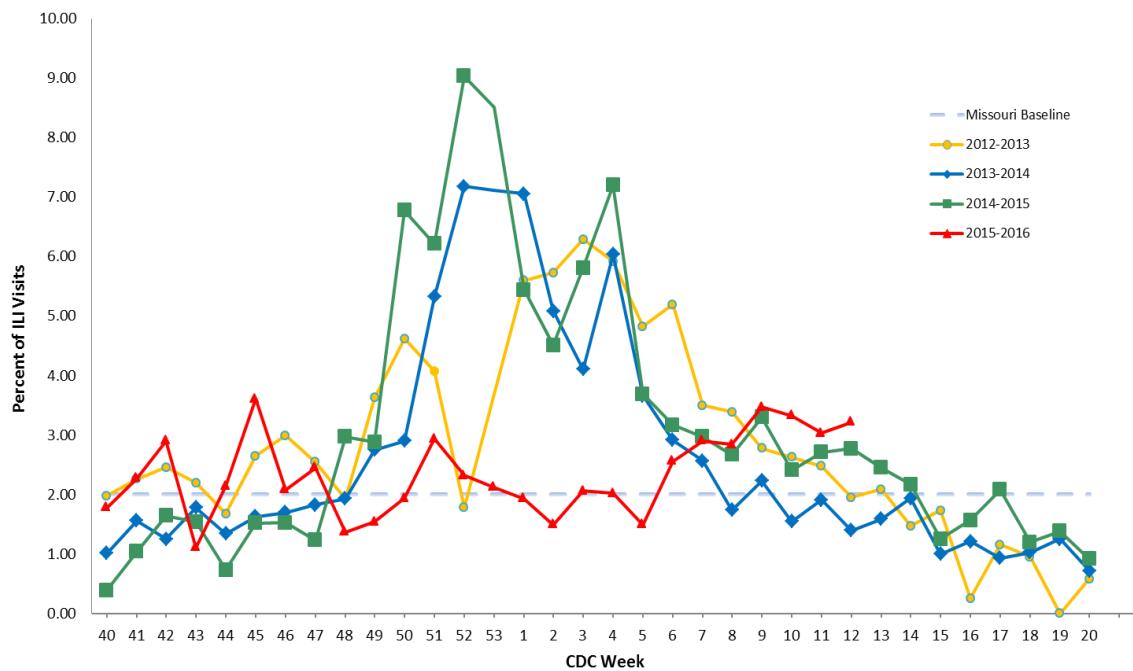[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
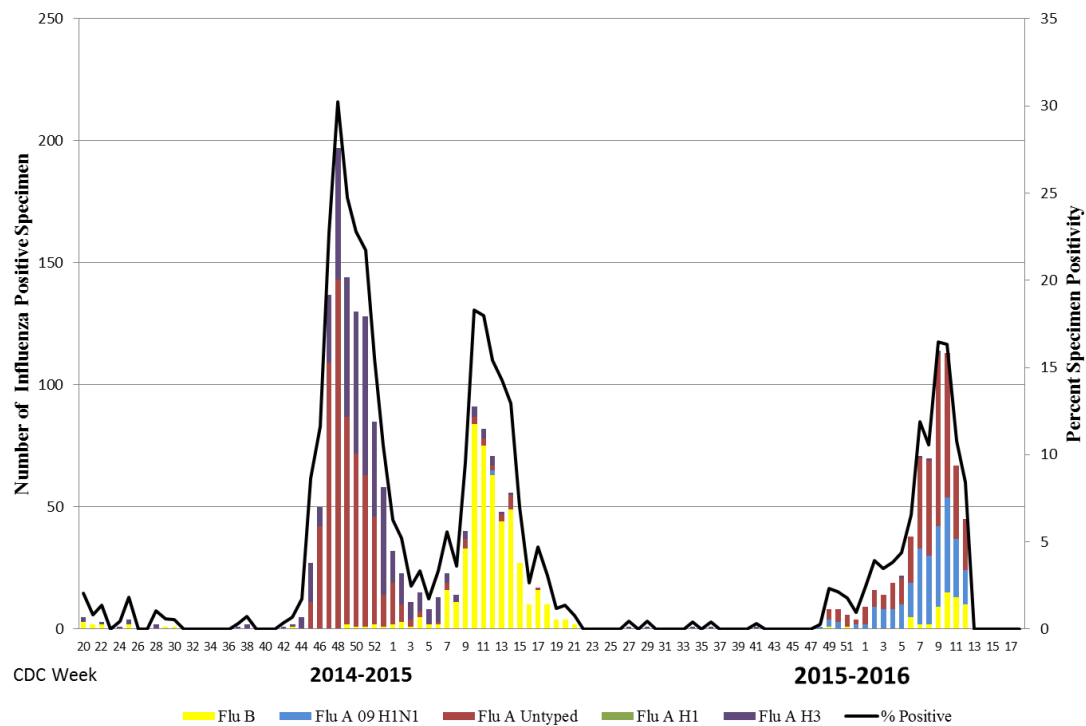*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

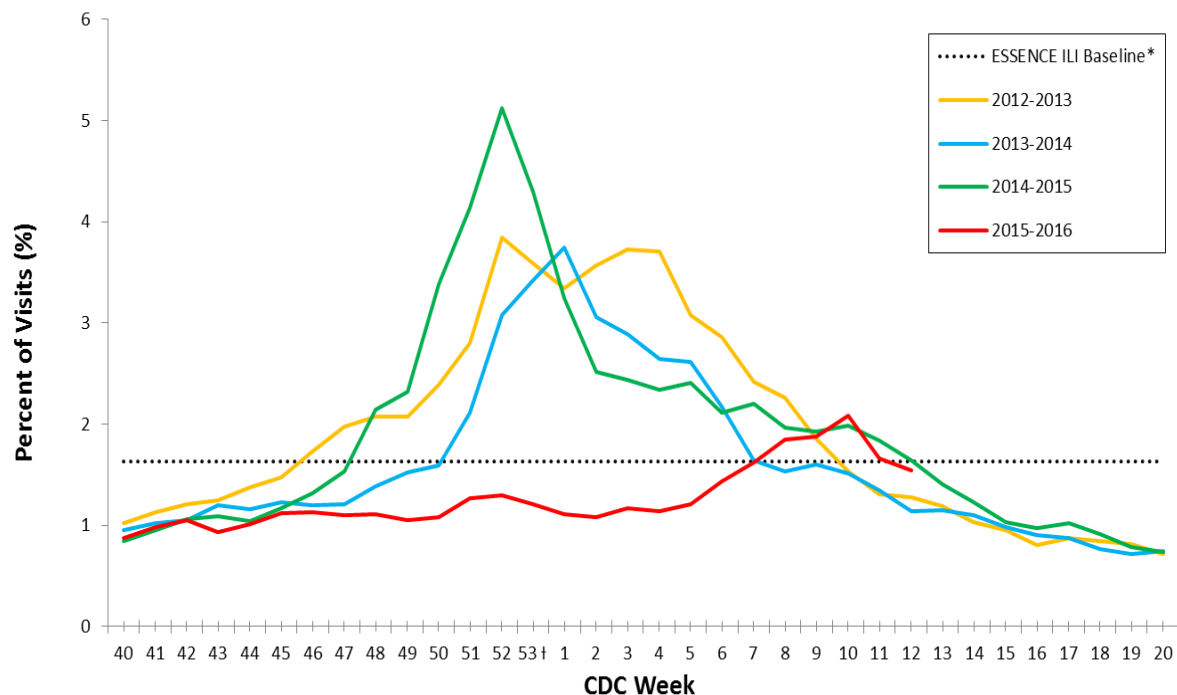# Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
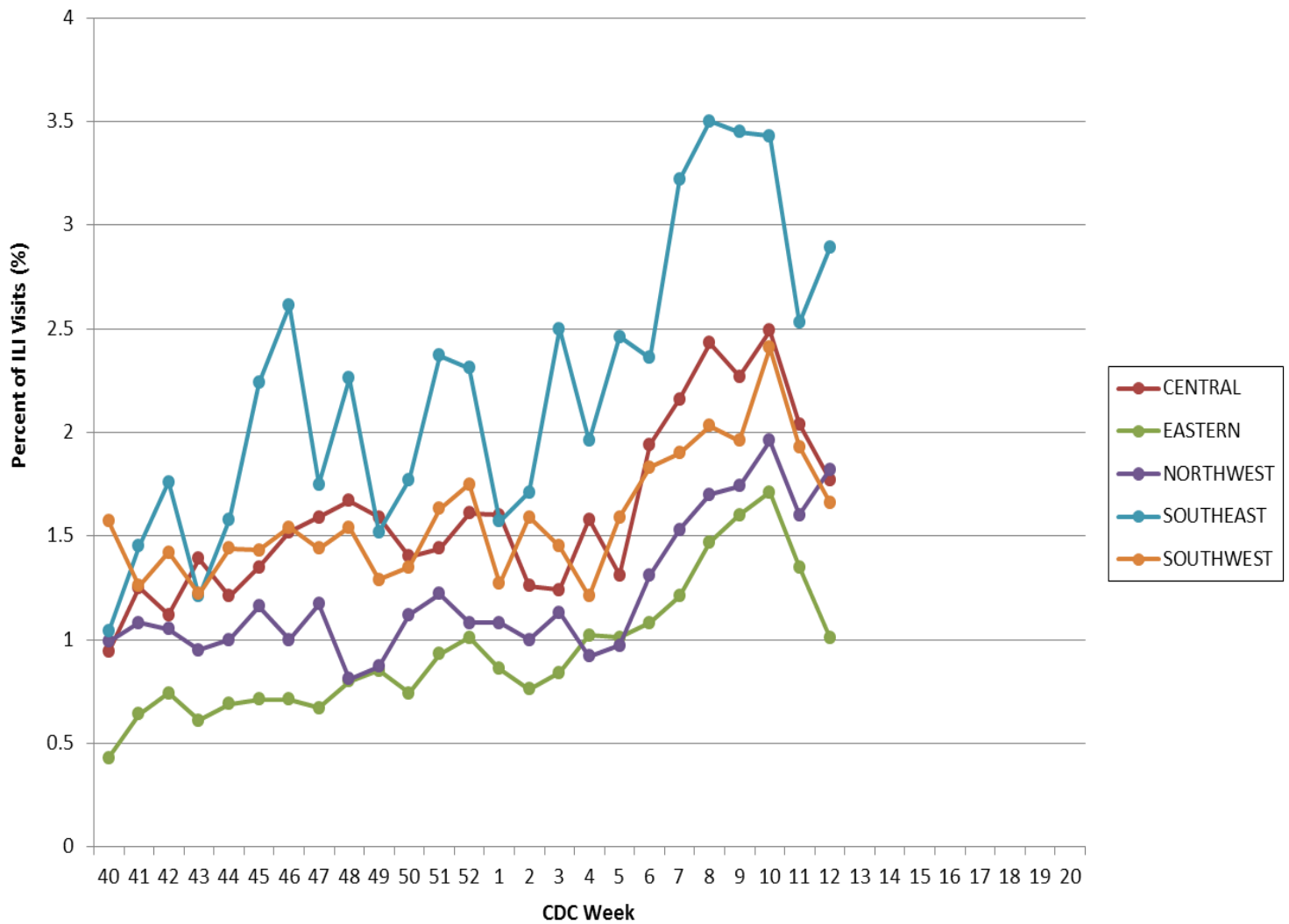
[†]ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending March 26, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.79 | 2.37 | 1.98 | 1.38 | 0.97 | 1.82 |
| Central | 6.91 | 3.17 | 1.33 | 0.7 | 0.52 | 1.77 |
| Eastern | 2.19 | 1.10 | 1.14 | 0.78 | 0.37 | 1.01 |
| Southeast | 12.5 | 4.76 | 1.96 | 1.40 | 0.80 | 2.89 |
| Southwest | 6.30 | 3.43 | 0.81 | 0.83 | 1.12 | 1.66 |
| **Statewide** | **4.10** | **2.35** | **1.39** | **0.98** | **0.69** | **1.54** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending March 26, 2016
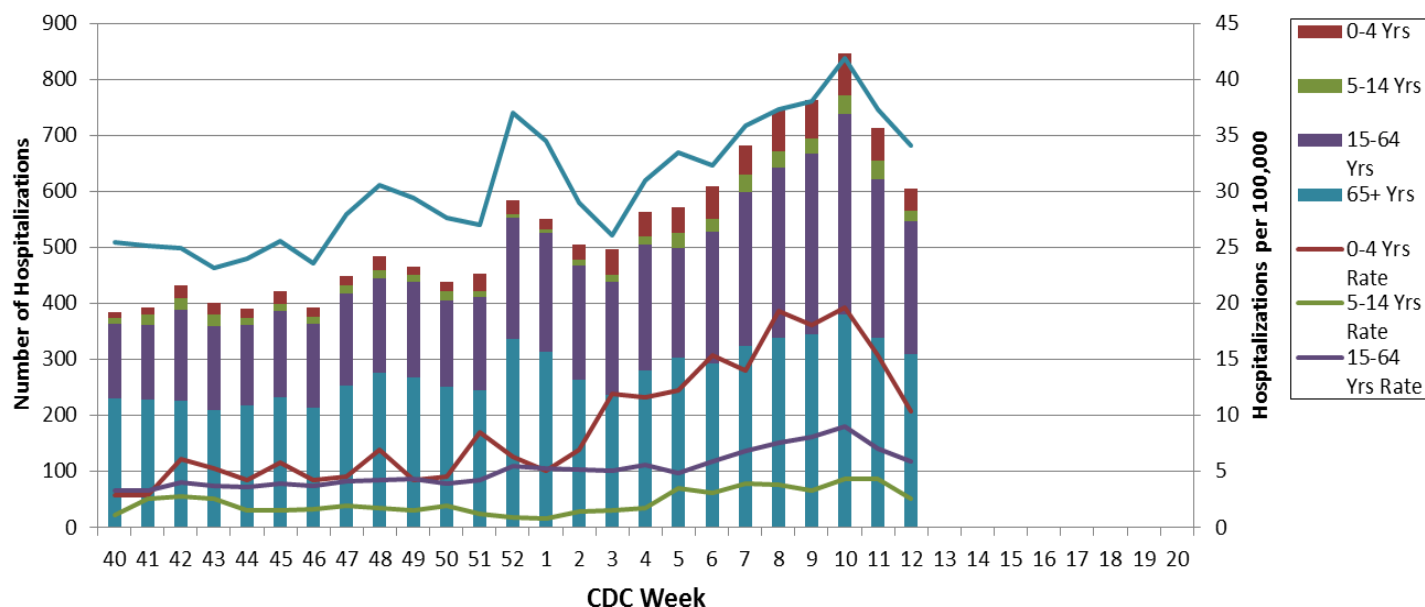


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending March 26, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=84386e6f-8f61-4fdf-8808-44f7559c6357**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 13: March 27 – April 2, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri remained at Widespread[2].

- A season-to-date total of 14,957 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 74% influenza A, 24% influenza B, and 2% untyped. Influenza A accounted for 67% of reported cases during Week 13 and remains the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (776 cases per 100,000 population) and children aged 5-14 years (397 cases per 100,000 population). Three laboratory-confirmed influenza cases of influenza A (H1N1) were reported by the Missouri State Public Health Laboratory (MSPHL) during Week 13.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 11 influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, seven viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. An A/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE during Week 13. The reported percentage of visits for ILI was 3.14% and 1.28% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 12, 66 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,683 P&I associated deaths in Missouri[5].

- Three influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased slightly, but remained elevated in the U.S. during Week 12. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Widespread is defined as: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state with recent laboratory evidence of influenza in the state.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of 100ºF [37.8ºC] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1MeNCaW *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 13**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

### Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 13 (March 27 – April 2, 2016)

| Influenza Type | Week 11 | Week 12 | Week 13 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 1,784 | 1,050 | 686 | 11,087 |
| Influenza B | 571 | 447 | 327 | 3,519 |
| Influenza Unknown Or Untyped | 54 | 12 | 15 | 351 |
| Total | 2,409 | 1,509 | 1,028 | 14,957 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

### Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 13 (March 27 – April 2, 2016)

| Age Group | Week 13 Cases | Week 13 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 172 | 46 | 2,926 | 776 |
| 05-14 | 194 | 25 | 3,114 | 397 |
| 15-64 | 570 | 14 | 7,711 | 194 |
| 65+ | 92 | 10 | 1,206 | 133 |
| Total | 1,028 | 17 | 14,957 | 247 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 13 (March 27 – April 2, 2016)**
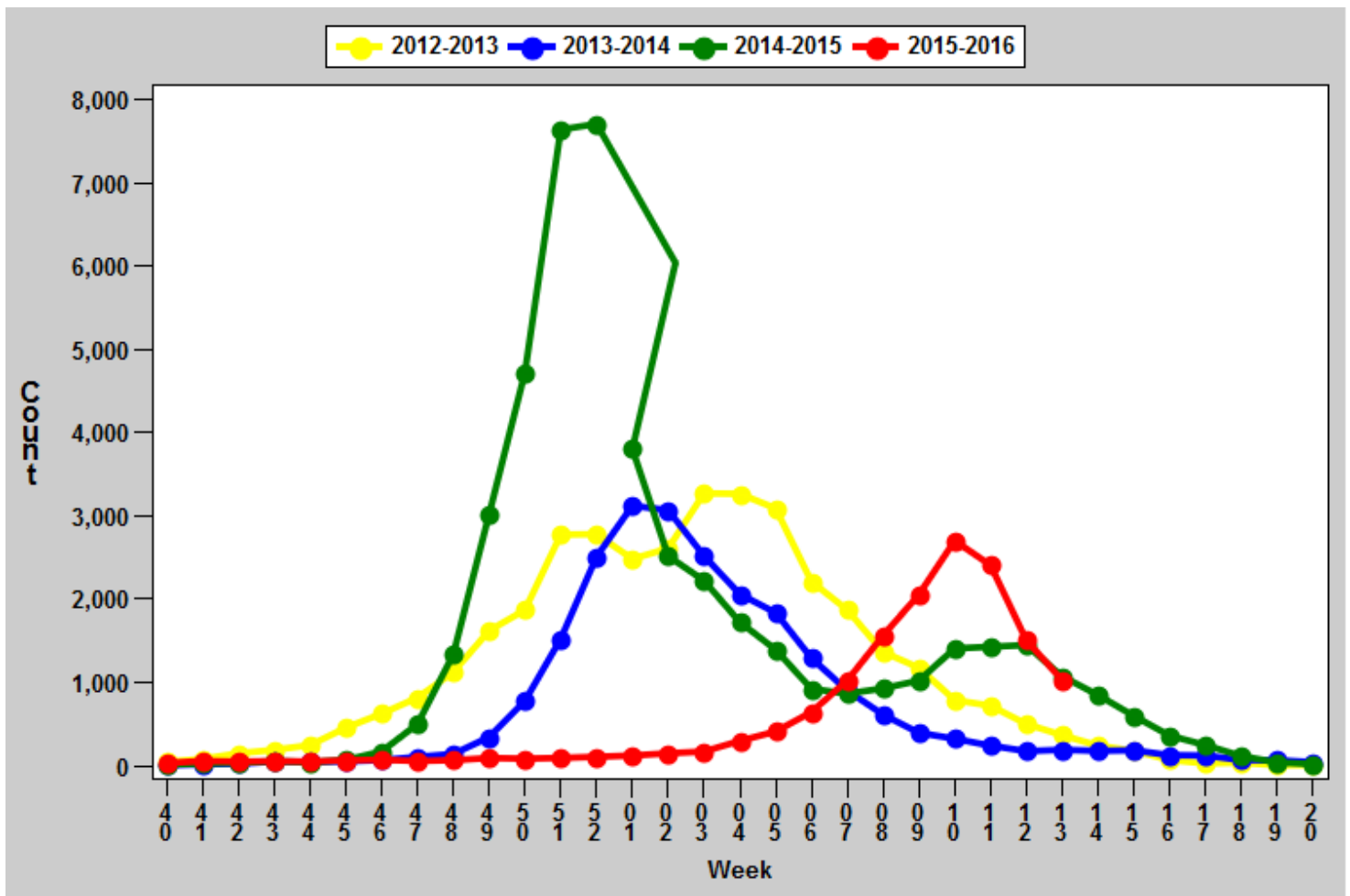
| District | Week 13 Cases | Week 13 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 82 | 12 | 1,692 | 256 |
| EA | 374 | 17 | 5,180 | 230 |
| NW | 354 | 22 | 5,188 | 327 |
| SE | 83 | 17 | 1,039 | 218 |
| SW | 135 | 13 | 1,858 | 173 |
| Total | 1,028 | 17 | 14,957 | 247 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
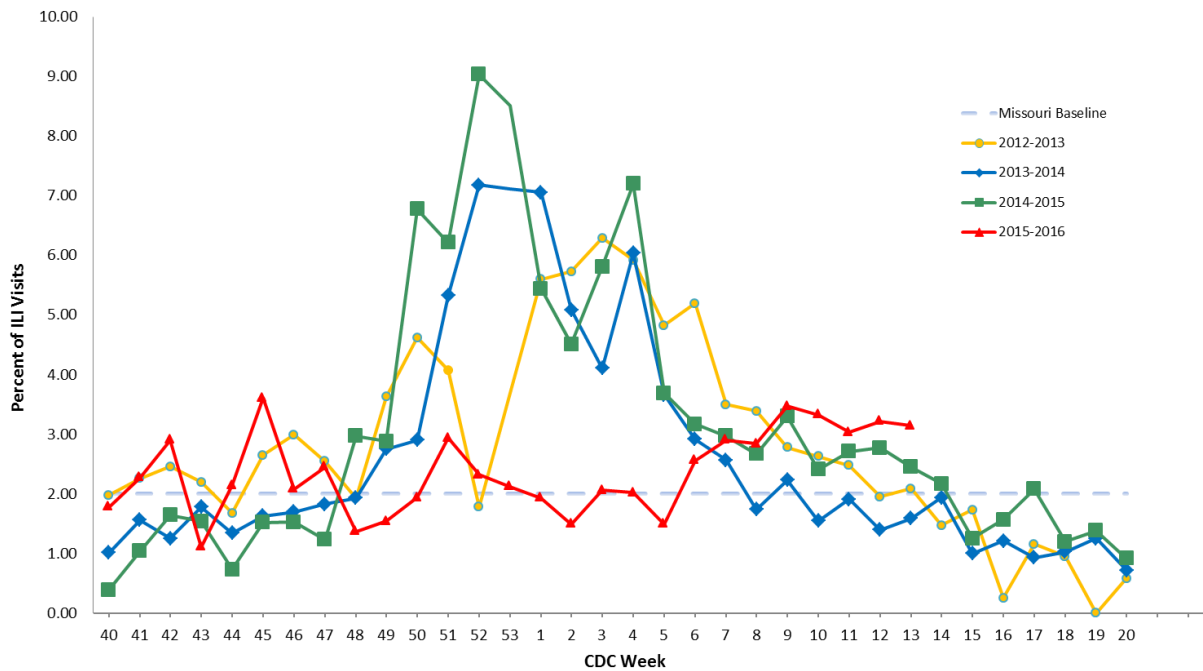[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
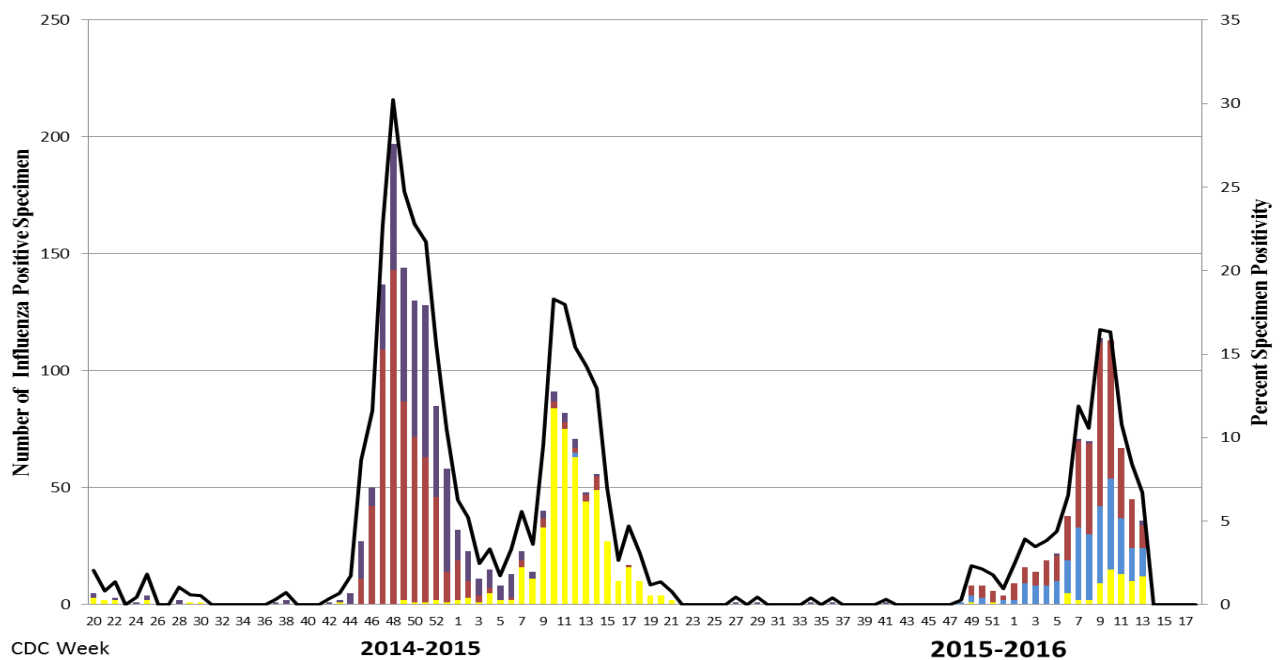*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

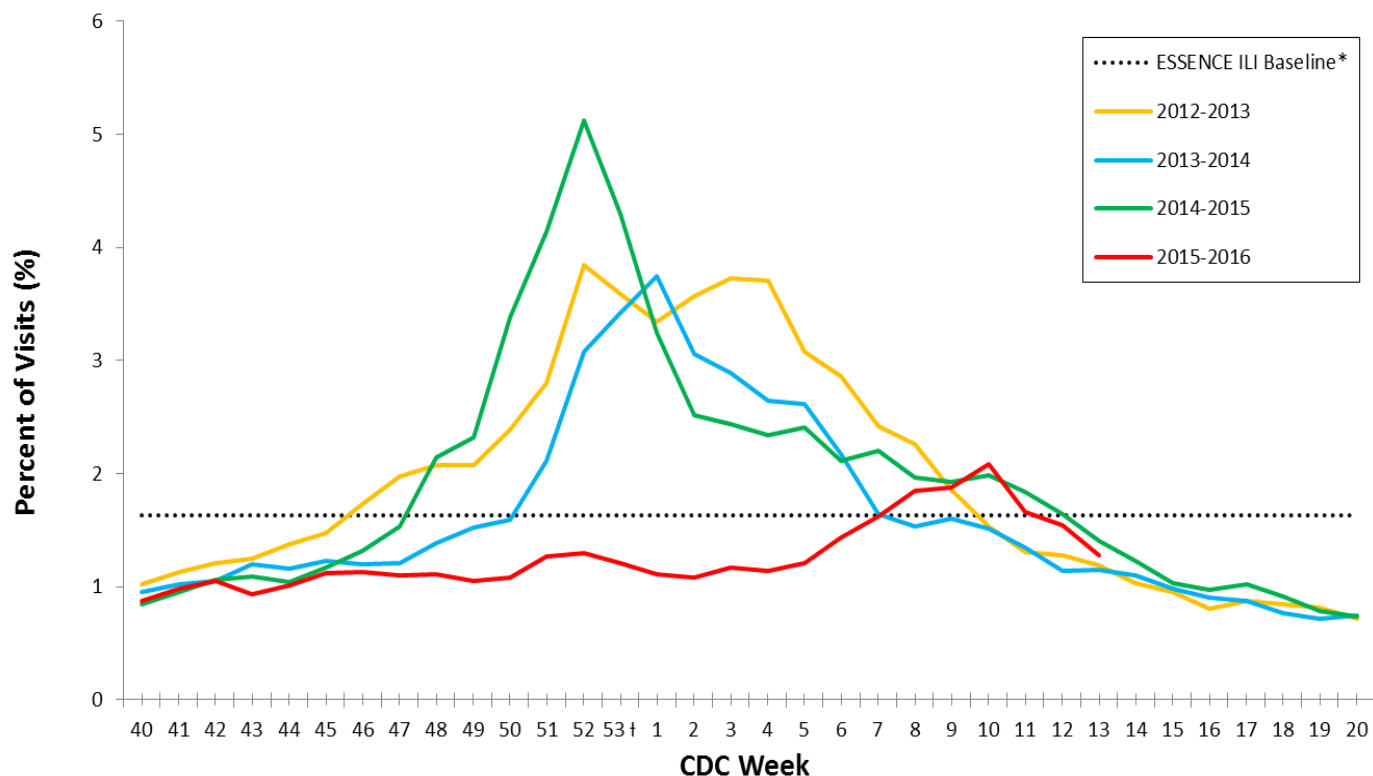## Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
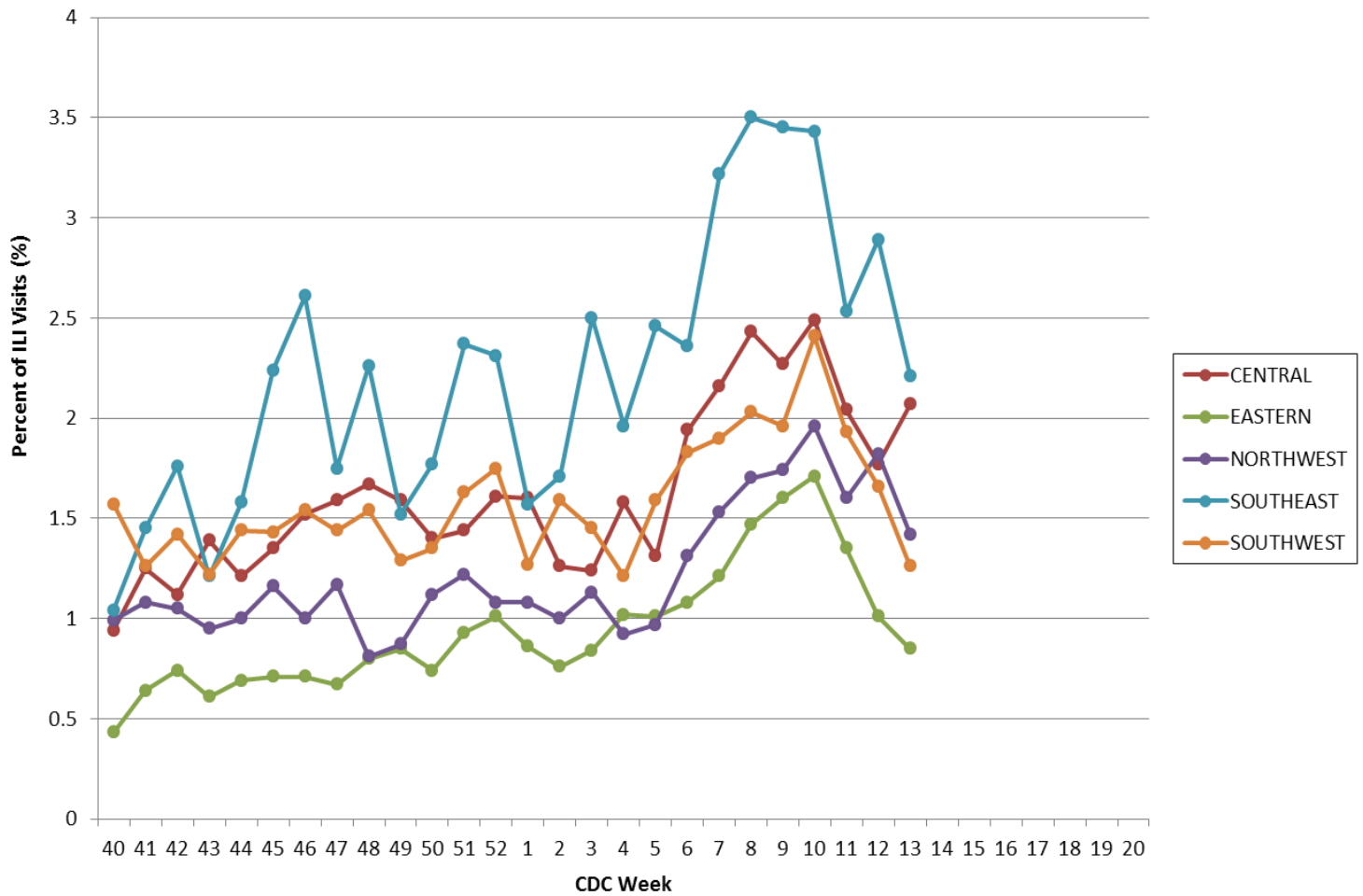
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending April 2, 2016**

| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.82 | 1.98 | 1.44 | 1.48 | 0.64 | 1.42 |
| Central | 7.44 | 2.44 | 1.80 | 1.41 | 0.81 | 2.07 |
| Eastern | 1.28 | 1.06 | 0.95 | 0.80 | 0.41 | 0.85 |
| Southeast | 9.76 | 4.05 | 1.12 | 0.95 | 1.15 | 2.21 |
| Southwest | 3.35 | 1.91 | 1.26 | 0.81 | 0.46 | 1.26 |
| **Statewide** | **2.88** | **1.77** | **1.24** | **1.05** | **0.57** | **1.28** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending April 2, 2016
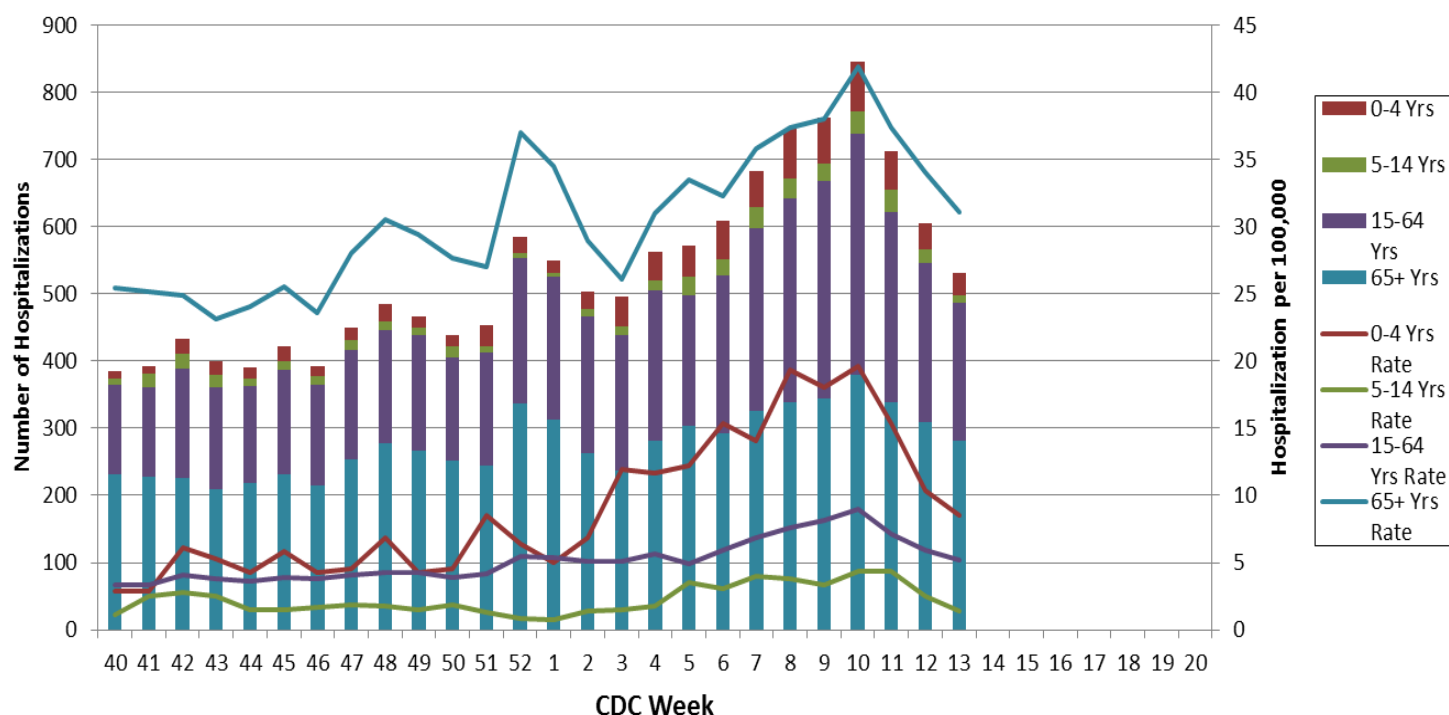


Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending April 2, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=ba862b5f-d1c2-463b-bf5a-ed190063fae1**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 14: April 3– April 9, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri decreased to Regional[2].

- A season-to-date total of 16,327 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 73% influenza A, 25% influenza B, and 2% untyped. Influenza A accounted for 59% of reported cases during Week 14 and remains the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (837 cases per 100,000 population) and children aged 5-14 years (432 cases per 100,000 population). Two laboratory-confirmed influenza cases (one influenza A (H1N1), one influenza B) were reported by the Missouri State Public Health Laboratory (MSPHL) during Week 14.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 11 influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, seven viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. An A/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE during Week 14. The reported percentage of visits for ILI was 2.05% and 1.14% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 13, 63 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,746 P&I associated deaths in Missouri[5].

- Three influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased slightly, but remained elevated in the U.S. during Week 13. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Regional is defined as: Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of 100ºF [37.8ºC] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1SMycY3 *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 14**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 14 (April 3 – April 9, 2016)**

| Influenza Type | Week 12 | Week 13 | Week 14 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 1,109 | 838 | 490 | 11,940 |
| Influenza B | 472 | 409 | 336 | 4,013 |
| Influenza Unknown Or Untyped | 18 | 23 | 9 | 374 |
| Total | 1,599 | 1,270 | 835 | 16,327 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 14 (April 3 – April 9, 2016)**

| Age Group | Week 14 Cases | Week 14 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 146 | 39 | 3,154 | 837 |
| 05-14 | 163 | 21 | 3,384 | 432 |
| 15-64 | 440 | 11 | 8,455 | 213 |
| 65+ | 86 | 9 | 1,334 | 147 |
| Total | 835 | 14 | 16,327 | 270 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 14 (April 3 – April 9, 2016)**
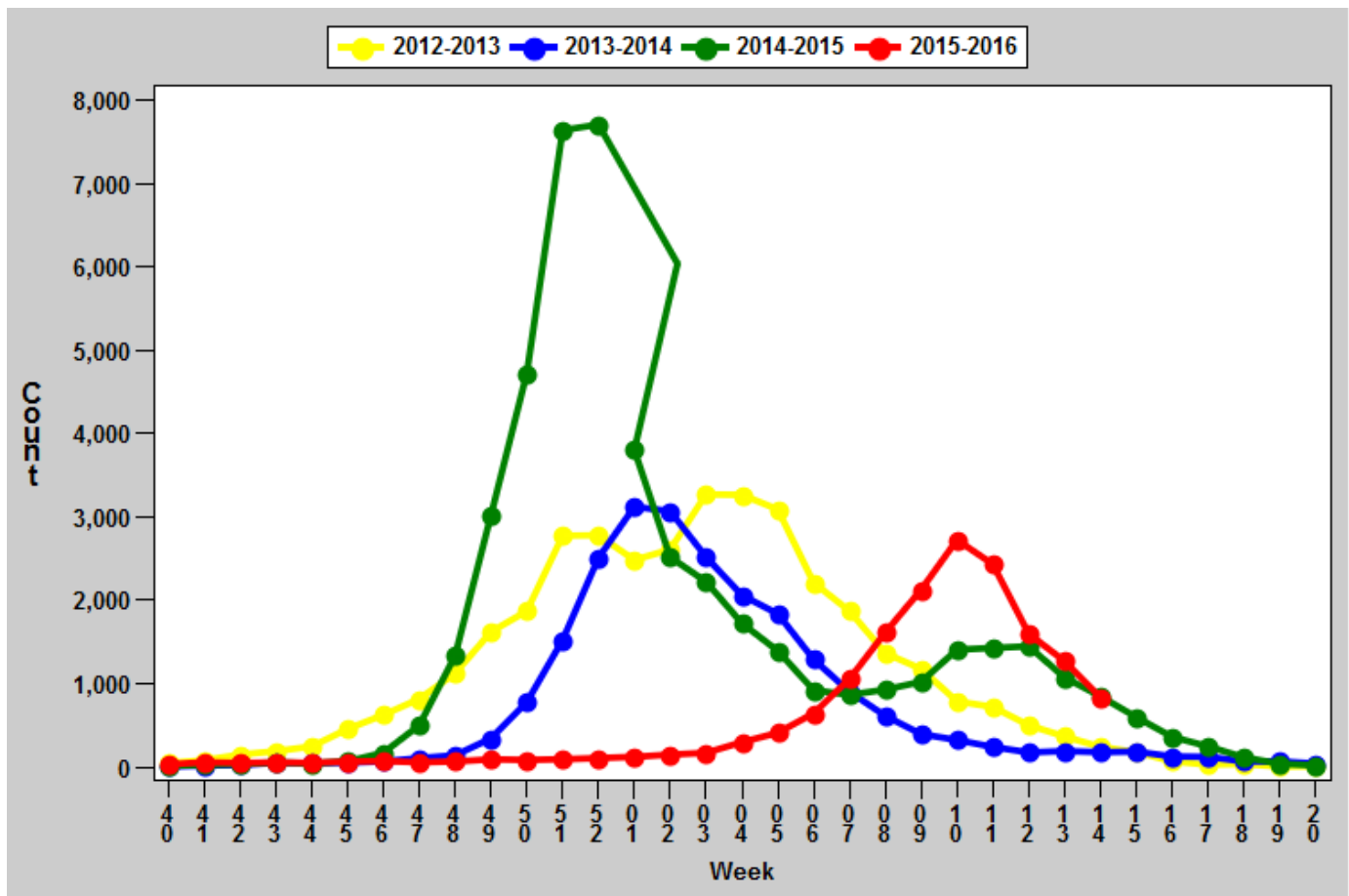
| District | Week 14 Cases | Week 14 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 87 | 13 | 1,871 | 284 |
| EA | 254 | 11 | 5,460 | 243 |
| NW | 264 | 17 | 5,600 | 353 |
| SE | 84 | 18 | 1,178 | 247 |
| SW | 146 | 14 | 2,218 | 207 |
| Total | 835 | 14 | 16,327 | 270 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
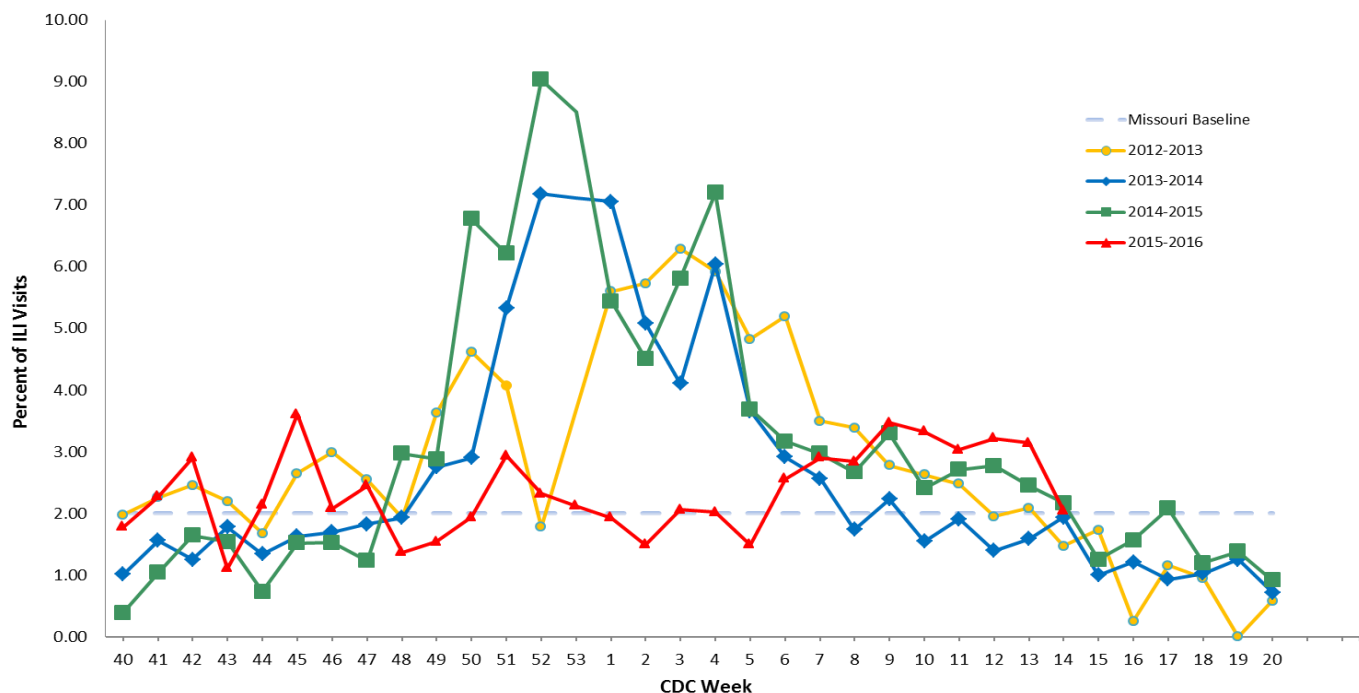*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).
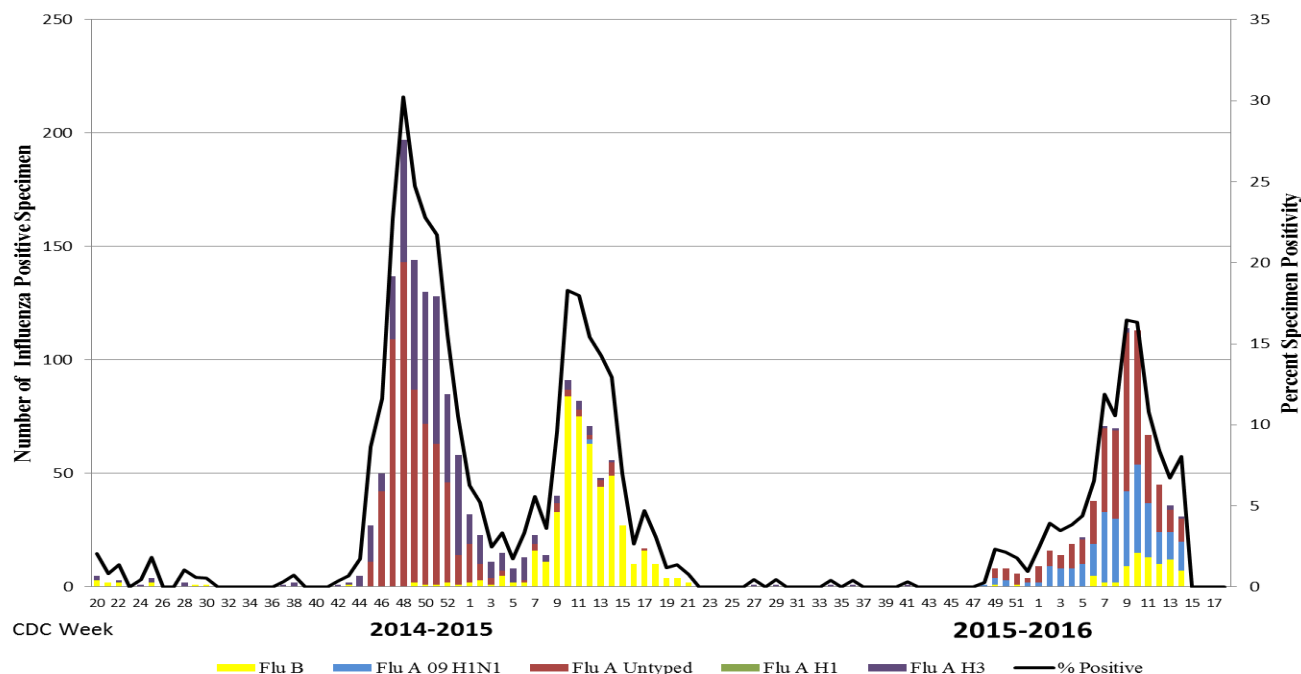
# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

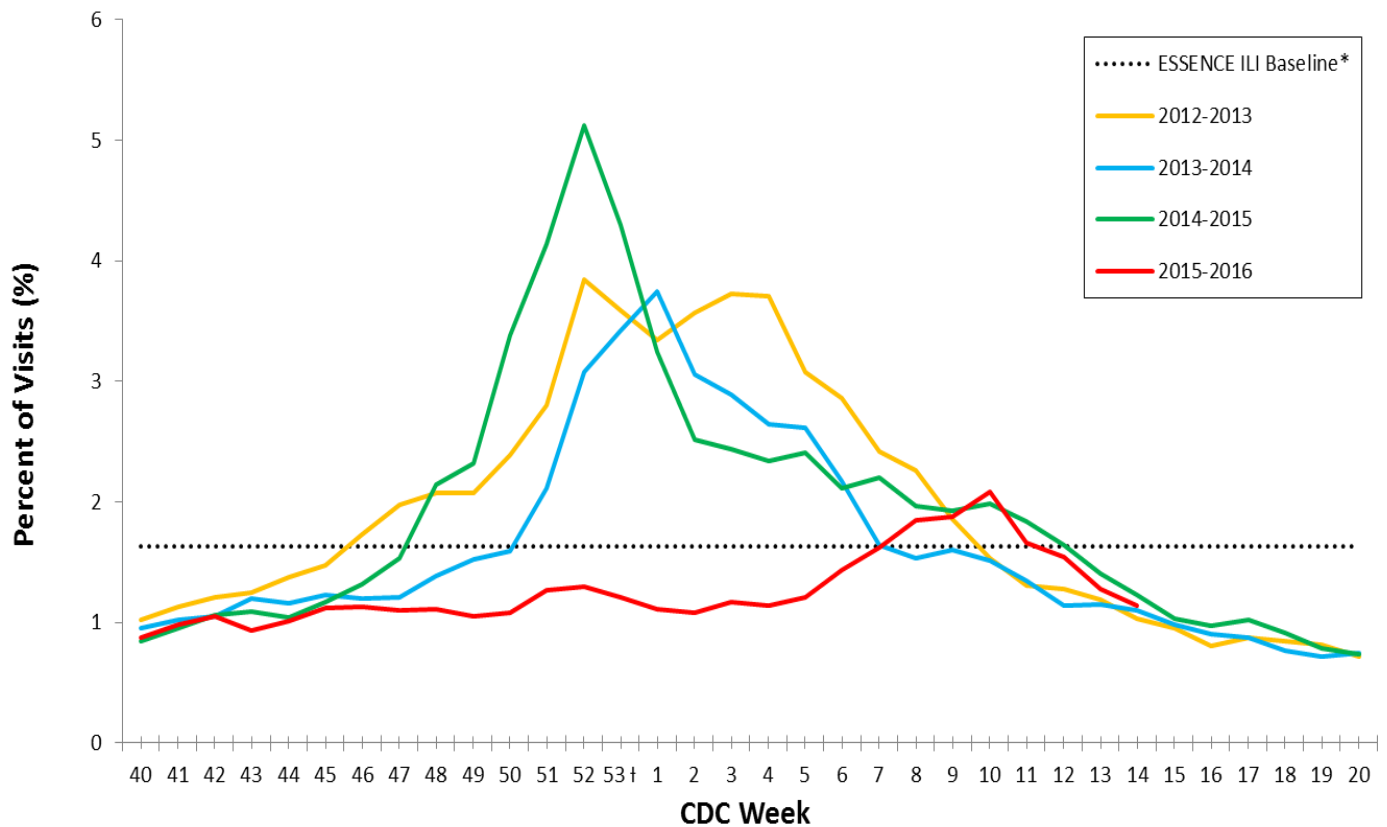# Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
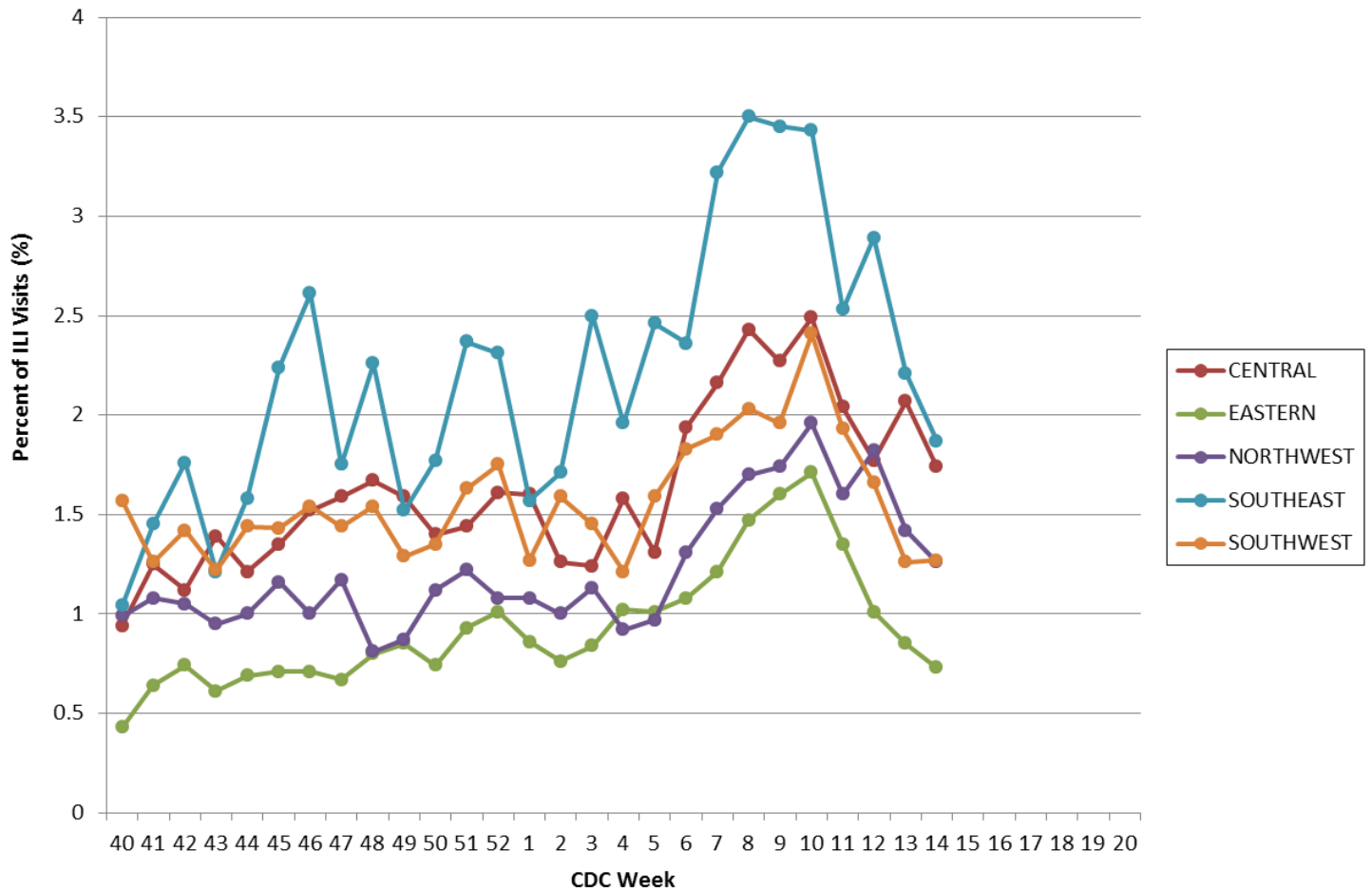
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending April 9, 2016**

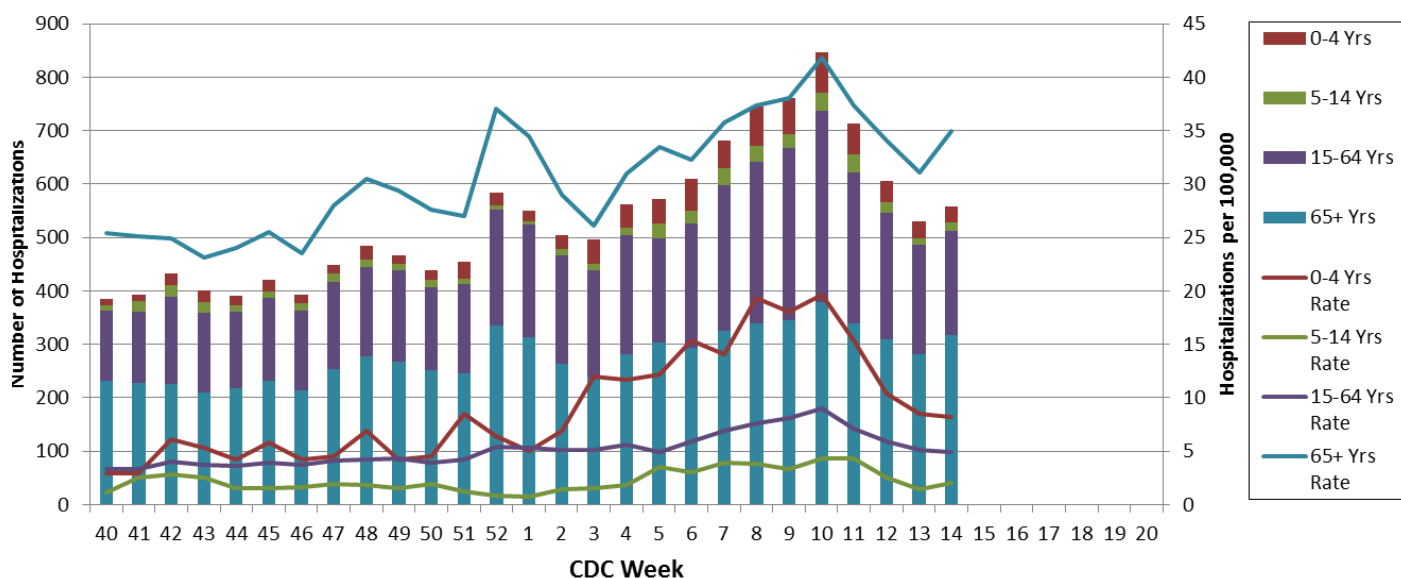| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 2.30 | 1.95 | 1.27 | 0.96 | 0.48 | 1.26 |
| Central | 5.21 | 2.91 | 1.13 | 1.07 | 1.53 | 1.74 |
| Eastern | 1.59 | 1.06 | 0.67 | 0.66 | 0.35 | 0.73 |
| Southeast | 6.80 | 4.43 | 1.00 | 1.16 | 0.55 | 1.87 |
| Southwest | 4.68 | 2.42 | 0.84 | 0.56 | 0.63 | 1.27 |
| **Statewide** | **2.94** | **1.96** | **0.94** | **0.80** | **0.58** | **1.14** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending April 9, 2016



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending April 9, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=9a278704-aacb-4043-a1e3-821bb2349f2f**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)
http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:
http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 15: April 10– April 16, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Regional[2].

- A season-to-date total of 17,242 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 72% influenza A, 26% influenza B, and 2% untyped. Influenza A and Influenza B both accounted for 48% of reported cases during Week 15 and Influenza A remains the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (884 cases per 100,000 population) and children aged 5-14 years (458 cases per 100,000 population). There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 15.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 11 influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, seven viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. An A/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was above baseline for the Missouri Outpatient ILI Surveillance Network (ILINet) and below baseline for the hospital emergency room visit chief complaint data reported through ESSENCE during Week 15. The reported percentage of visits for ILI was 2.04% and 1.13% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 14, 69 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,815 P&I associated deaths in Missouri[5].

- Four influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased, but remained elevated in the U.S. during Week 14. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Regional is defined as: Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/242rchw. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 15**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 15 (April 10 – April 16, 2016)**

| Influenza Type | Week 13 | Week 14 | Week 15 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 851 | 566 | 321 | 12,421 |
| Influenza B | 415 | 396 | 320 | 4,426 |
| Influenza Unknown Or Untyped | 23 | 10 | 20 | 395 |
| Total | 1,289 | 972 | 661 | 17,242 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 15 (April 10 – April 16, 2016)**

| Age Group | Week 15 Cases | Week 15 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 111 | 29 | 3,330 | 884 |
| 05-14 | 153 | 20 | 3,590 | 458 |
| 15-64 | 318 | 8 | 8,891 | 224 |
| 65+ | 79 | 9 | 1,431 | 158 |
| Total | 661 | 11 | 17,242 | 285 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 15 (April 10 – April 16, 2016)**
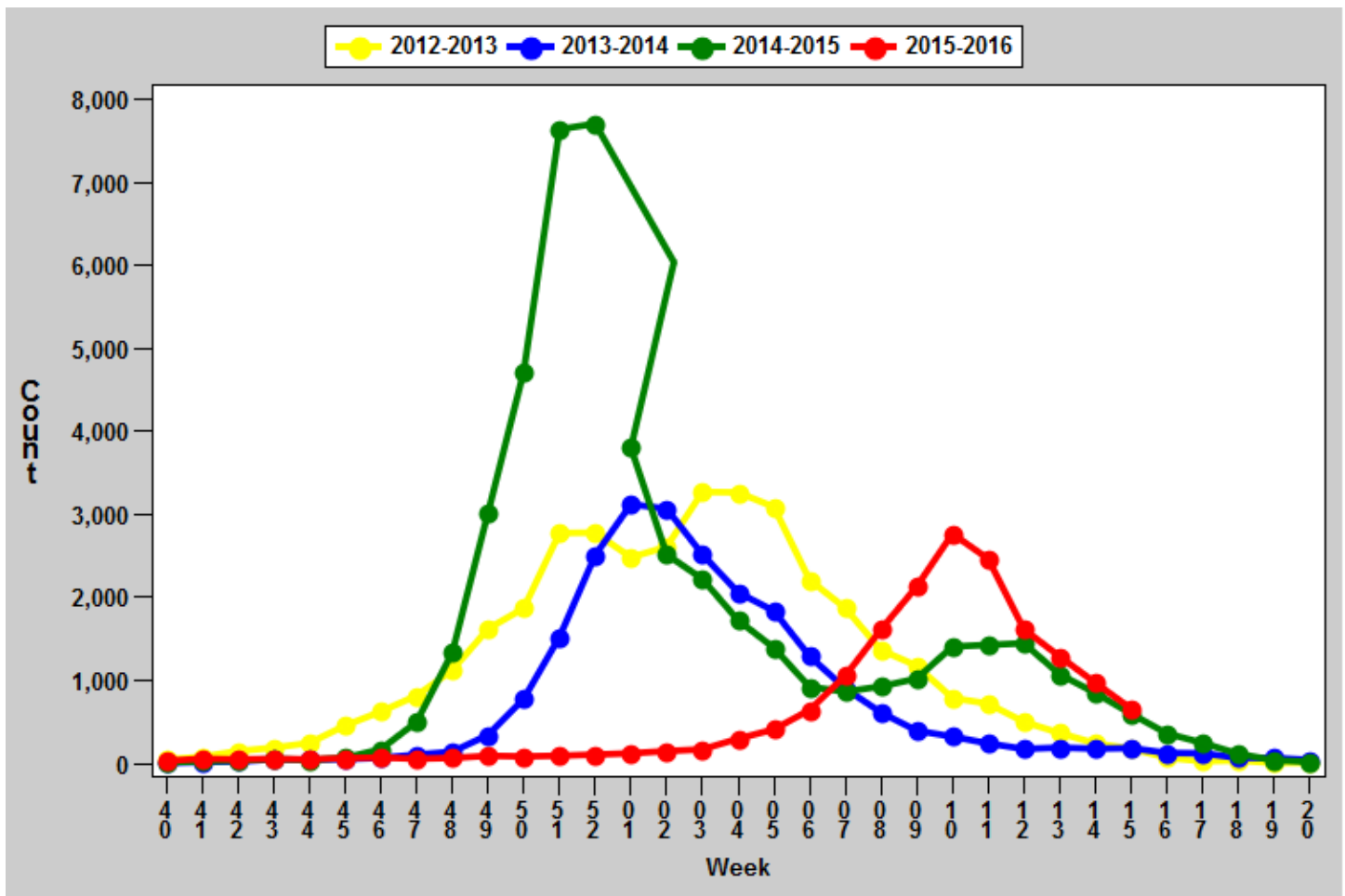
| District | Week 15 Cases | Week 15 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 37 | 6 | 1,941 | 294 |
| EA | 227 | 10 | 5,725 | 254 |
| NW | 258 | 16 | 5,889 | 372 |
| SE | 76 | 16 | 1,277 | 268 |
| SW | 63 | 6 | 2,410 | 225 |
| Total | 661 | 11 | 17,242 | 285 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
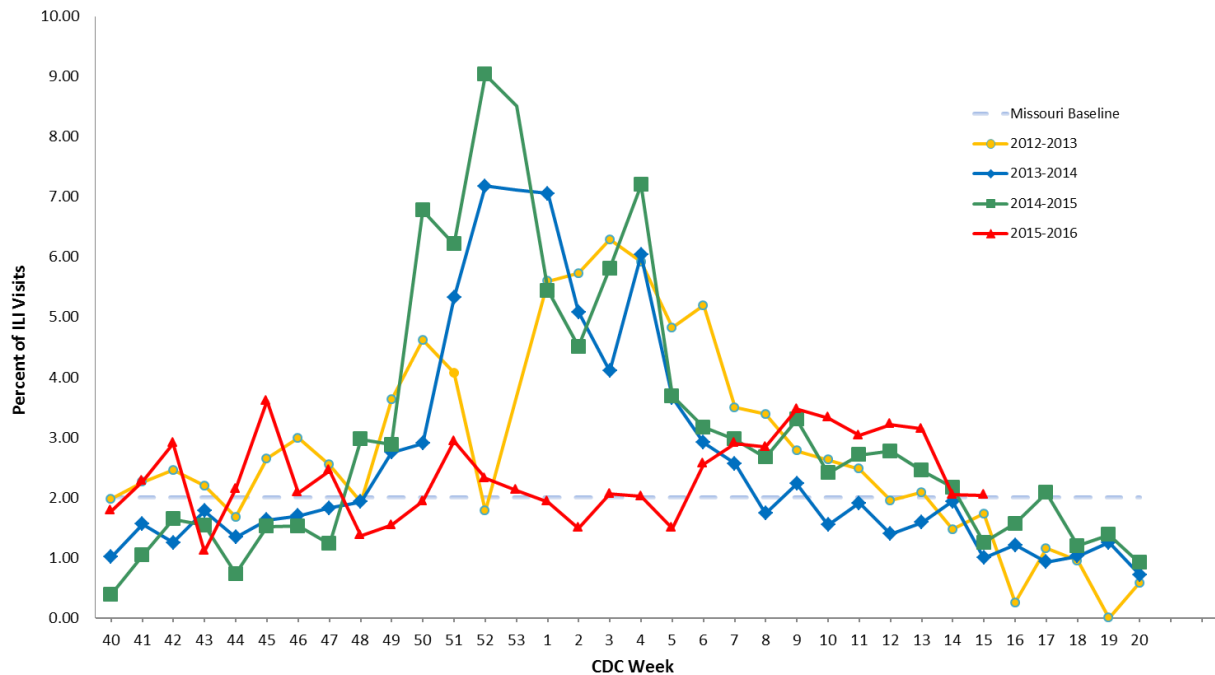[‡] Incidence Rate per 100,000 population

**Graph 1.  Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
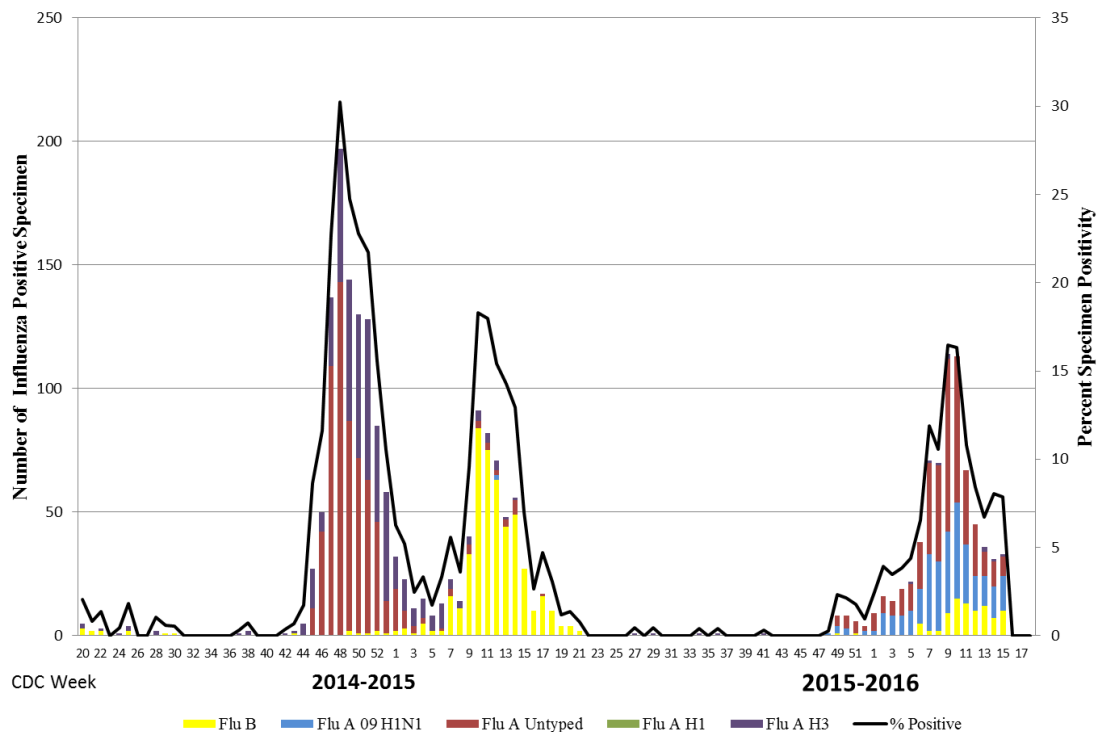*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

# Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests
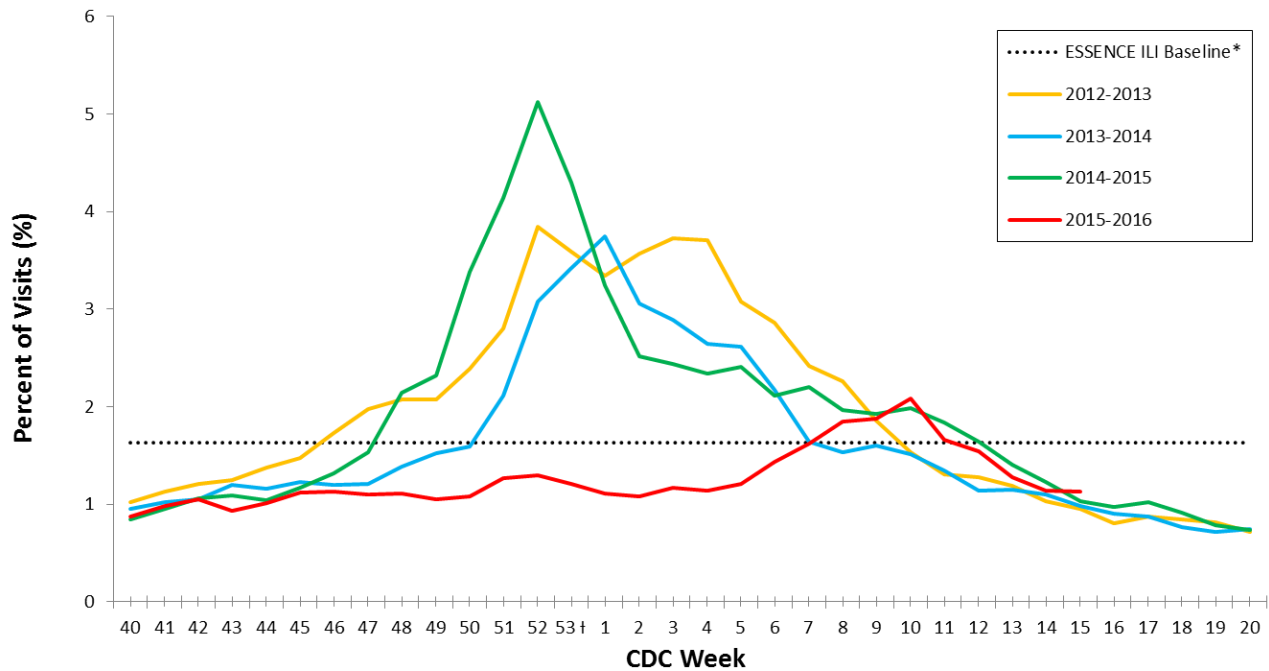


*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
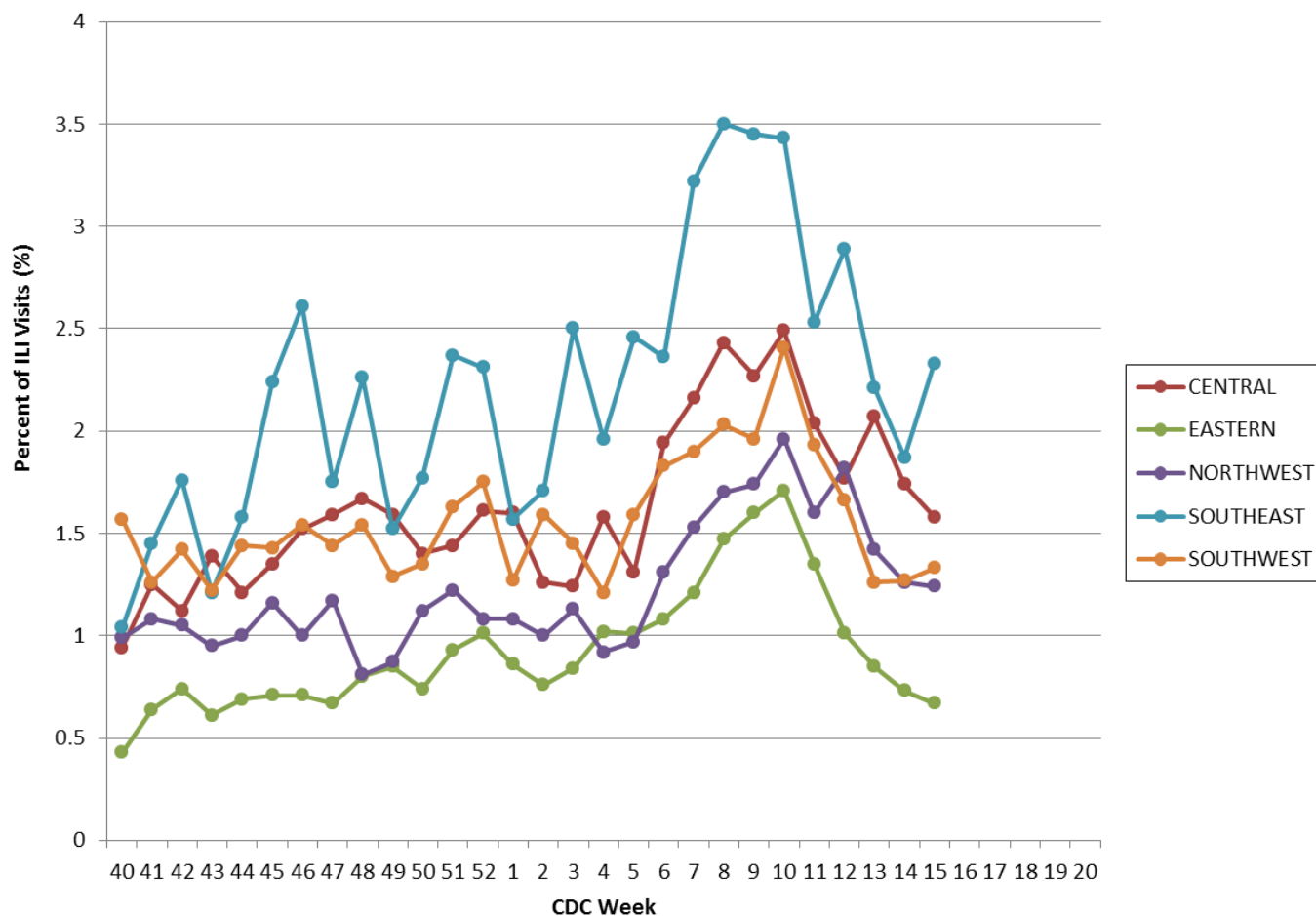
† ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending April 16, 2016**

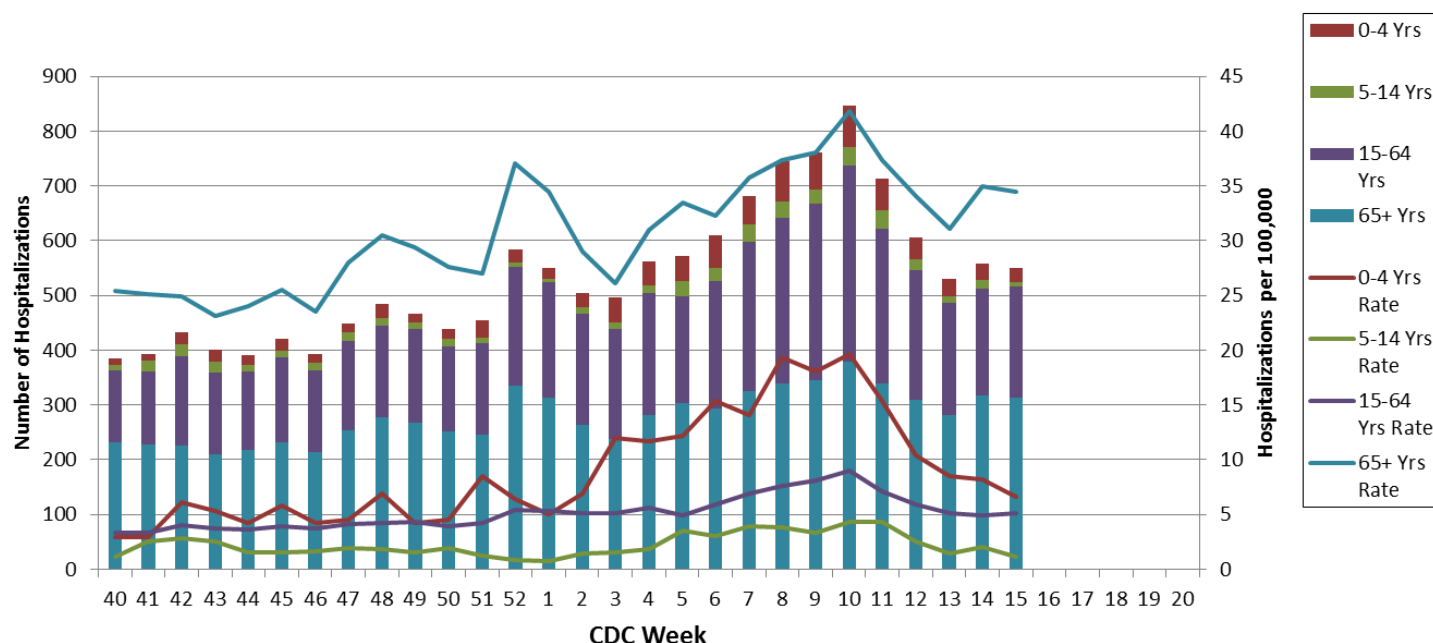| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.53 | 1.83 | 1.40 | 0.97 | 0.55 | 1.24 |
| Central | 4.37 | 1.25 | 1.56 | 1.61 | 0.60 | 1.58 |
| Eastern | 1.31 | 1.45 | 0.62 | 0.35 | 0.29 | 0.67 |
| Southeast | 6.34 | 5.07 | 2.15 | 1.10 | 0.94 | 2.33 |
| Southwest | 2.68 | 3.78 | 0.79 | 0.99 | 0.52 | 1.33 |
| **Statewide** | **2.15** | **2.16** | **1.06** | **0.80** | **0.48** | **1.13** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending April 16, 2016**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending April 16, 2016



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=ada266ab-aa3d-4fc1-a53c-32409e632956**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 16: April 17– April 23, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Regional[2].

- A season-to-date total of 18,335 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 71% influenza A, 27% influenza B, and 2% untyped. Influenza A accounted for 51% and influenza B accounted for 47% of reported cases during Week 16, with influenza A remaining the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (923 cases per 100,000 population) and children aged 5-14 years (494 cases per 100,000 population). There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 16.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 11 influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, seven viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. An A/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE during Week 16. The reported percentage of visits for ILI was 1.77% and 1.07% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 15, 73 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,888 P&I associated deaths in Missouri[5].

- Six influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased in the U.S. during Week 15. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1] The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2] Regional is defined as: Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

[3] Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4] Influenza-like illness (ILI) is defined by ILINet as fever (temperature of 100$^{\circ}$F [37.8$^{\circ}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5] The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at*
[http://on.mo.gov/1QAzQua.](http://on.mo.gov/1QAzQua.) *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 16**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,
Missouri, CDC Week 16 (April 17 – April 23, 2016)**

| Influenza Type | Week 14 | Week 15 | Week 16 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 571 | 400 | 441 | 12,952 |
| Influenza B | 408 | 420 | 412 | 4,965 |
| Influenza Unknown Or Untyped | 11 | 24 | 15 | 415 |
| Total | 990 | 844 | 868 | 18,335 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,
Missouri, CDC Week 16 (April 17 – April 23, 2016)**

| Age Group | Week 16 Cases | Week 16 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 105 | 28 | 3,480 | 923 |
| 05-14 | 240 | 31 | 3,870 | 494 |
| 15-64 | 401 | 10 | 9,419 | 237 |
| 65+ | 122 | 13 | 1,566 | 173 |
| Total | 868 | 14 | 18,335 | 303 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 16 (April 17 – April 23, 2016)**
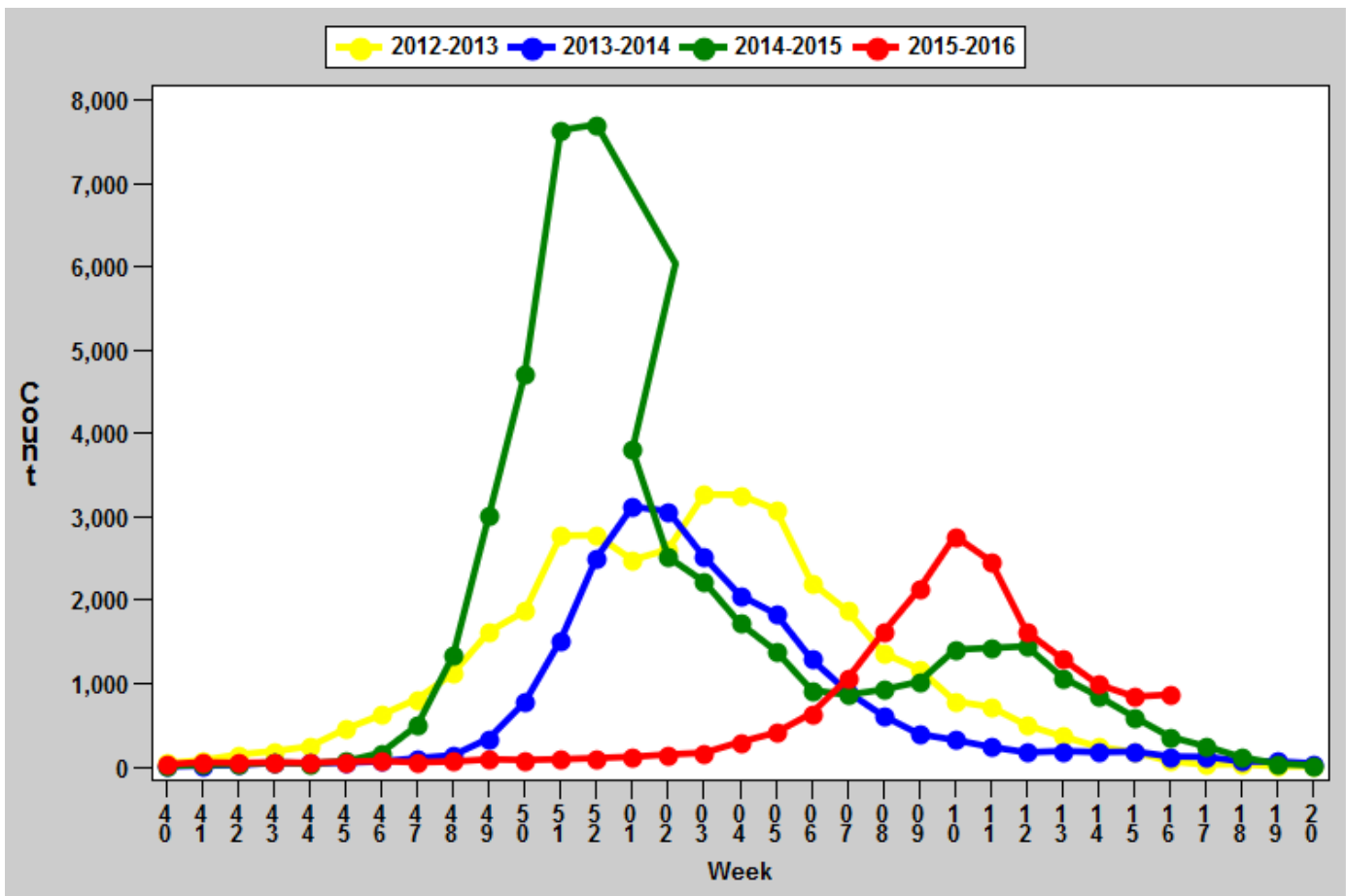
| District | Week 16 Cases | Week 16 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 87 | 13 | 2,087 | 316 |
| EA | 235 | 10 | 5,969 | 265 |
| NW | 283 | 18 | 6,199 | 391 |
| SE | 99 | 21 | 1,392 | 292 |
| SW | 164 | 15 | 2,688 | 251 |
| Total | 868 | 14 | 18,335 | 303 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
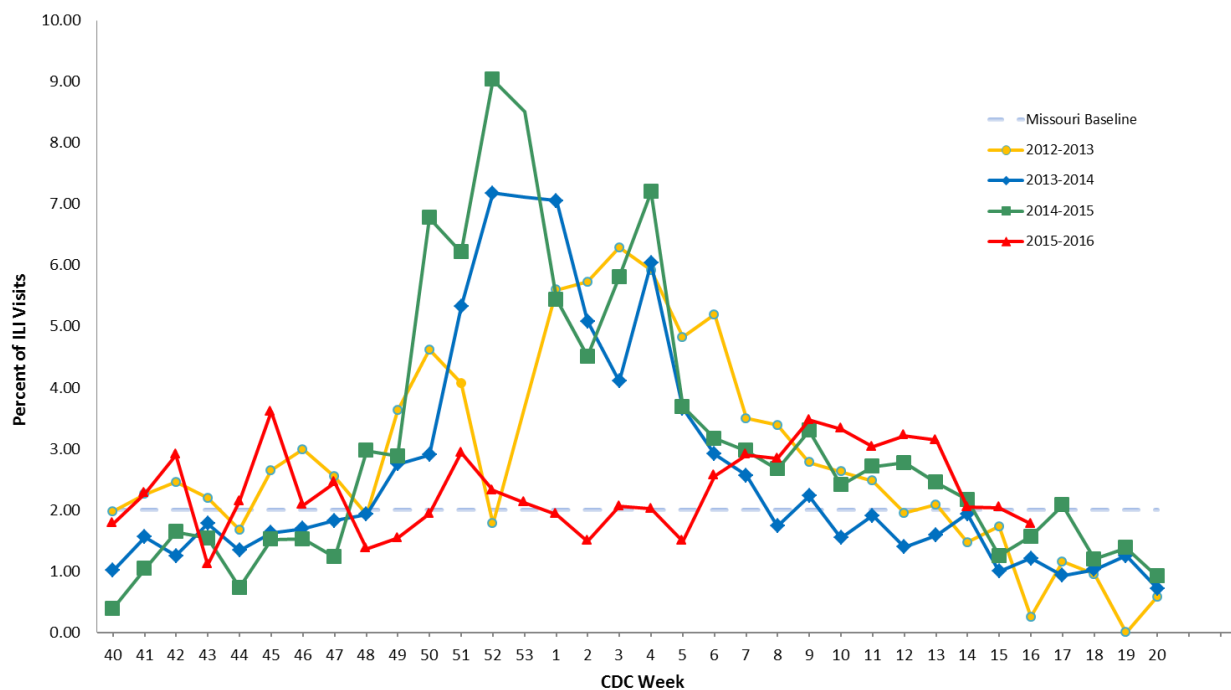[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
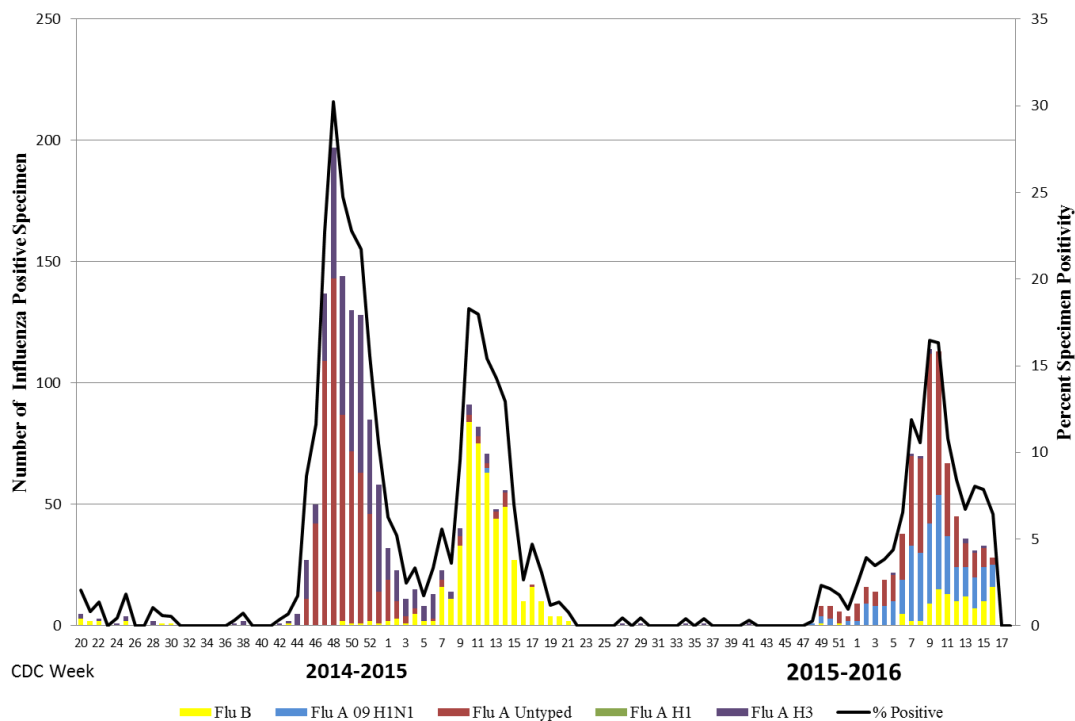*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

# Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests
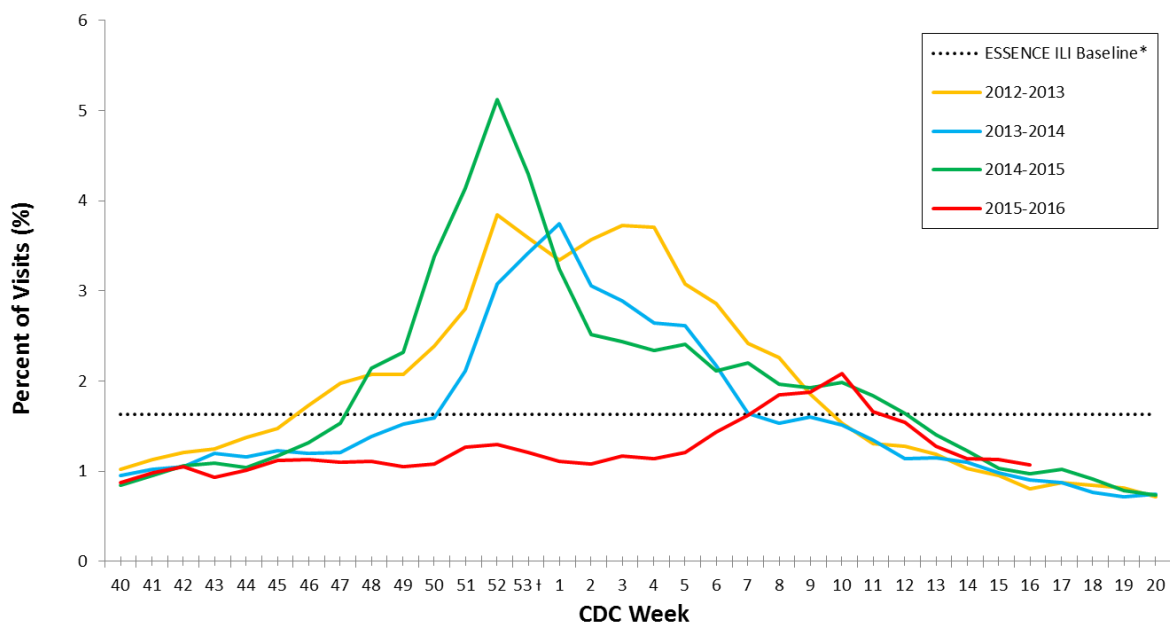


*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
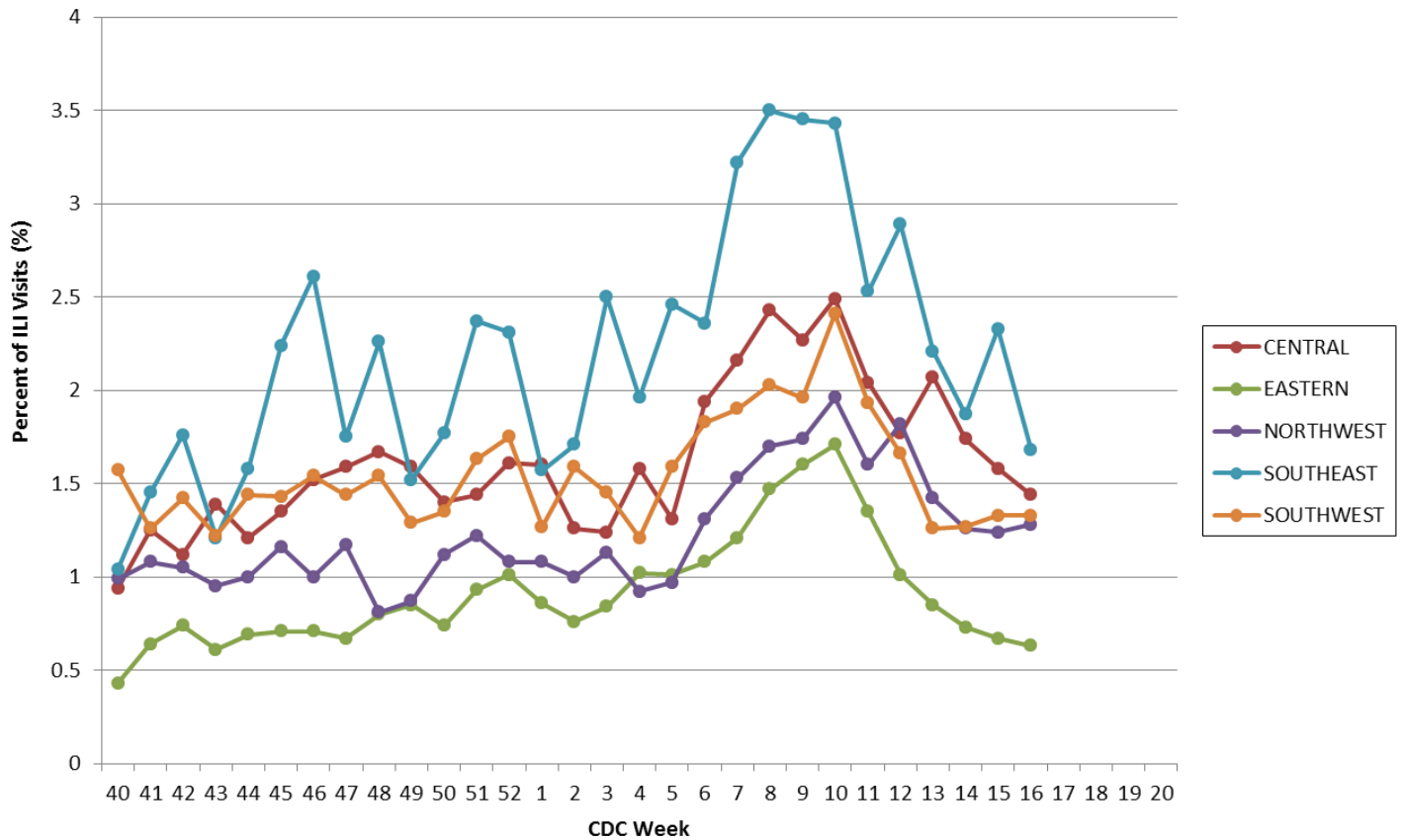†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending April 23, 2016**

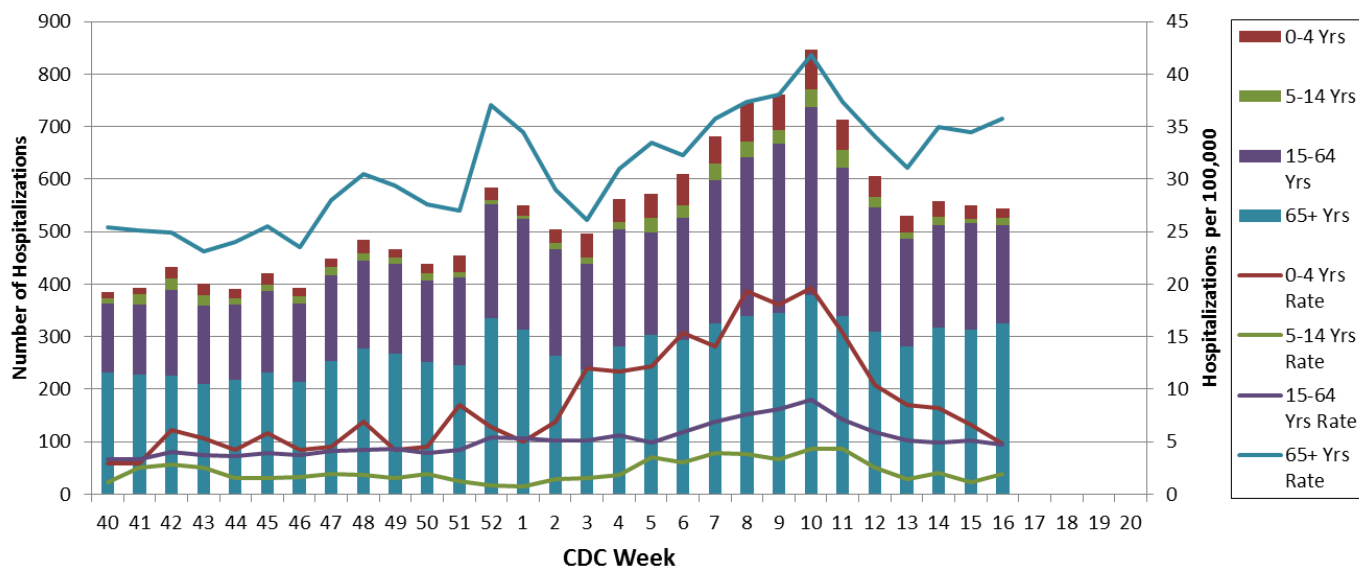| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.59 | 2.39 | 1.20 | 1.13 | 0.66 | 1.28 |
| Central | 3.58 | 2.75 | 1.29 | 1.02 | 0.53 | 1.44 |
| Eastern | 1.09 | 0.86 | 0.66 | 0.52 | 0.34 | 0.63 |
| Southeast | 6.72 | 3.25 | 1.10 | 0.97 | 0.77 | 1.68 |
| Southwest | 4.47 | 2.77 | 0.77 | 1.06 | 0.47 | 1.33 |
| **Statewide** | **2.27** | **1.90** | **0.93** | **0.85** | **0.49** | **1.07** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending April 23, 2016



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending April 23, 2016**



Data Source:  Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=835740fa-b459-4ebd-a158-d4479d887579**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

# Week 17: April 24 – April 30, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Regional[2].

- A season-to-date total of 19,252 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 70% influenza A, 28% influenza B, and 2% untyped. Influenza A accounted for 47% and influenza B accounted for 52% of reported cases during Week 17, with influenza A remaining the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (960 cases per 100,000 population) and children aged 5-14 years (521 cases per 100,000 population). There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 17.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 11 influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, seven viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. An A/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE during Week 17. The reported percentage of visits for ILI was 1.64% and 0.84% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 16, 66 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 1,954 P&I associated deaths in Missouri[5].

- Seven influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased in the U.S. during Week 16. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Regional is defined as: Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of $100^o$F [$37.8^o$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1ZdakBp. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 17**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type,**
**Missouri, CDC Week 17 (April 23 – April 30, 2016)**

| Influenza Type | Week 15 | Week 16 | Week 17 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 427 | 500 | 220 | 13,425 |
| Influenza B | 451 | 481 | 244 | 5,377 |
| Influenza Unknown Or Untyped | 27 | 25 | 4 | 450 |
| Total | 905 | 1,006 | 468 | 19,252 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group,**
**Missouri, CDC Week 17 (April 23 – April 30, 2016)**

| Age Group | Week 17 Cases | Week 17 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 72 | 19 | 3,618 | 960 |
| 05-14 | 119 | 15 | 4,082 | 521 |
| 15-64 | 232 | 6 | 9,880 | 249 |
| 65+ | 45 | 5 | 1,672 | 184 |
| Total | 468 | 8 | 19,252 | 319 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 17 (April 23 – April 30, 2016)**
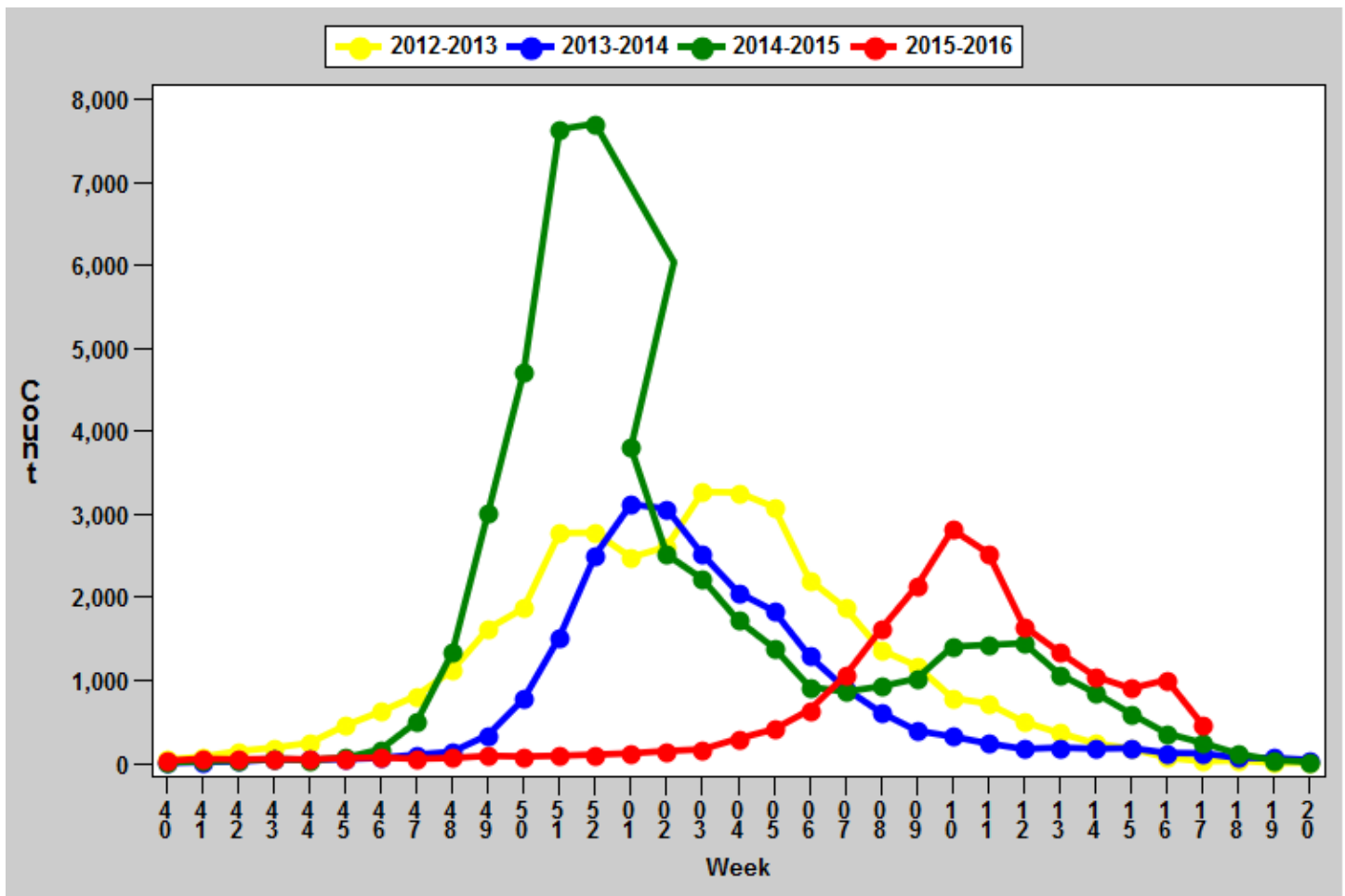
| District | Week 17 Cases | Week 17 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 21 | 3 | 2,122 | 322 |
| EA | 129 | 6 | 6,171 | 274 |
| NW | 174 | 11 | 6,661 | 420 |
| SE | 75 | 16 | 1,492 | 313 |
| SW | 69 | 6 | 2,806 | 262 |
| Total | 468 | 8 | 19,252 | 319 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
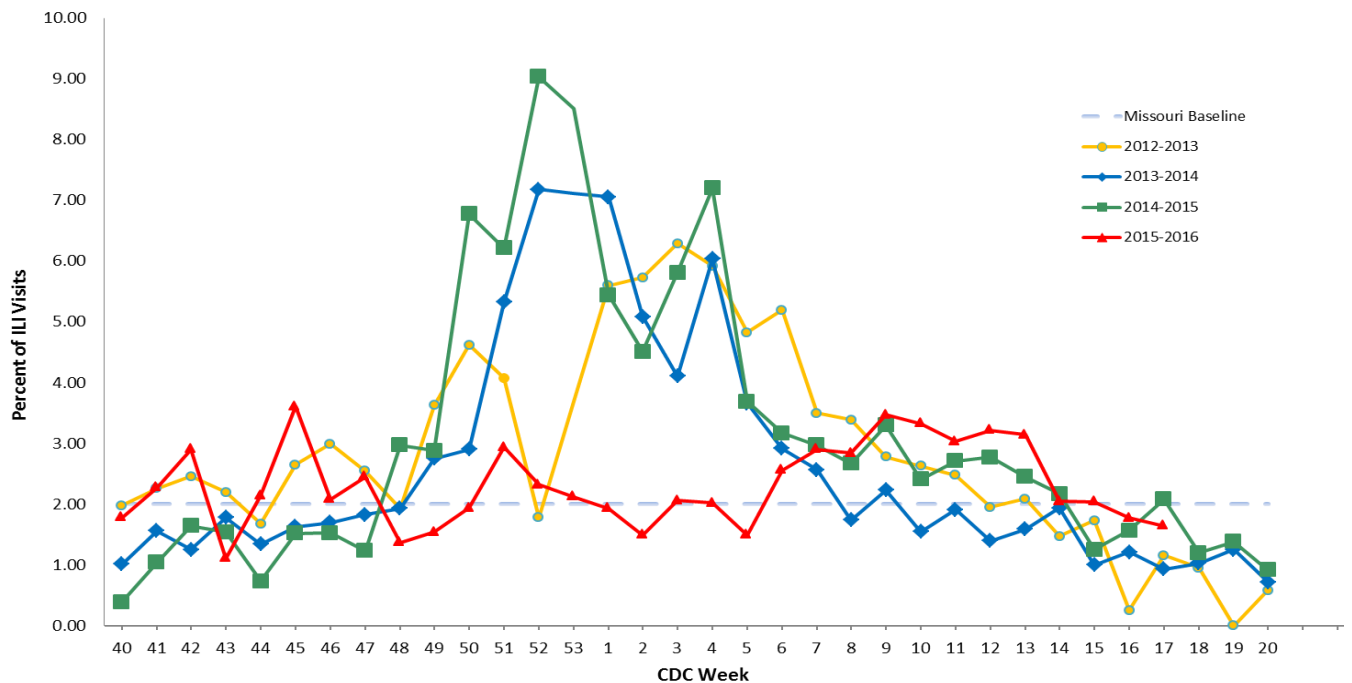[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
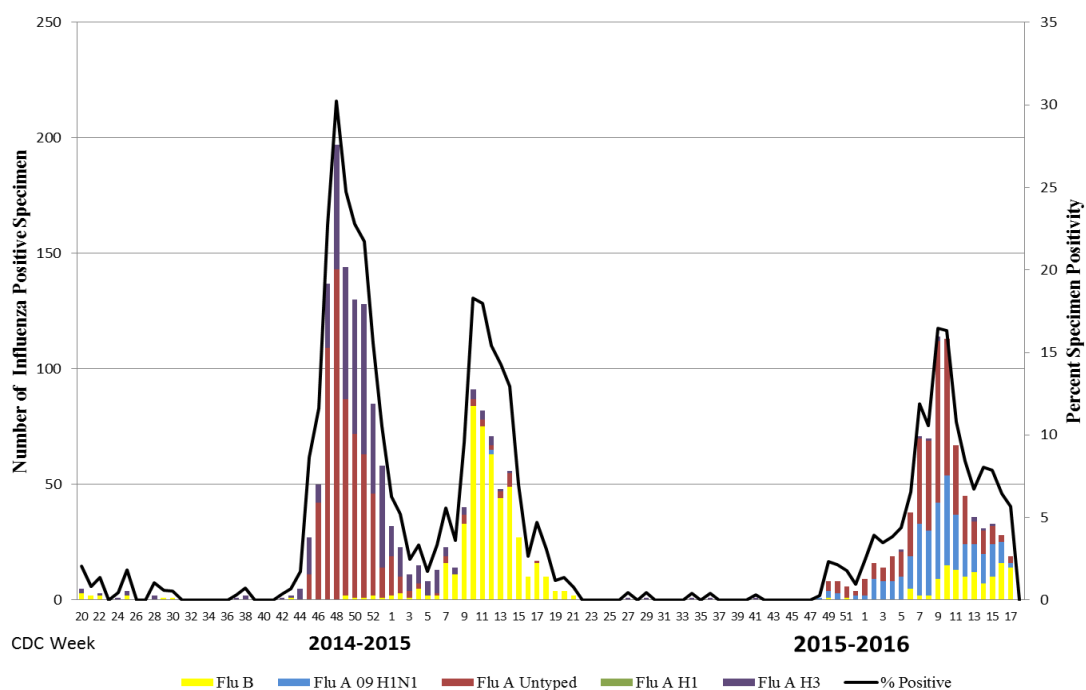*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

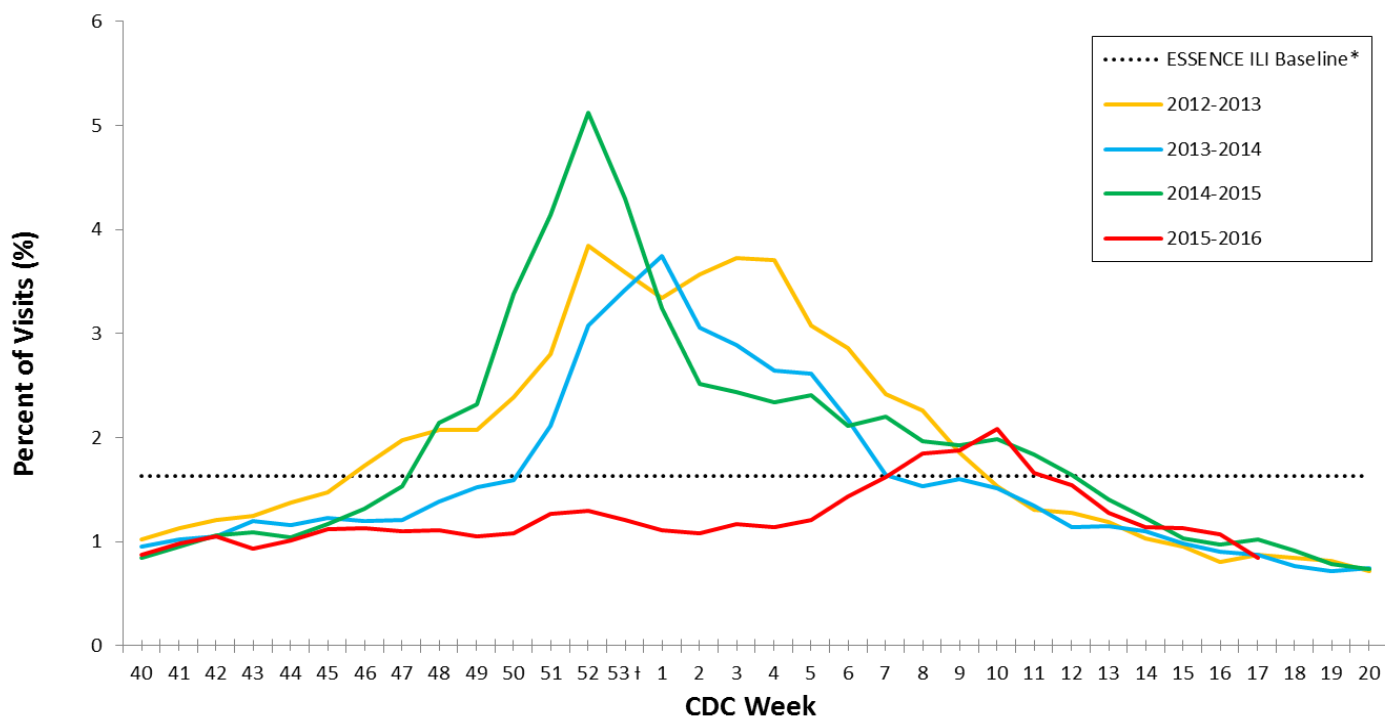## Graph 3.  St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source:  St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
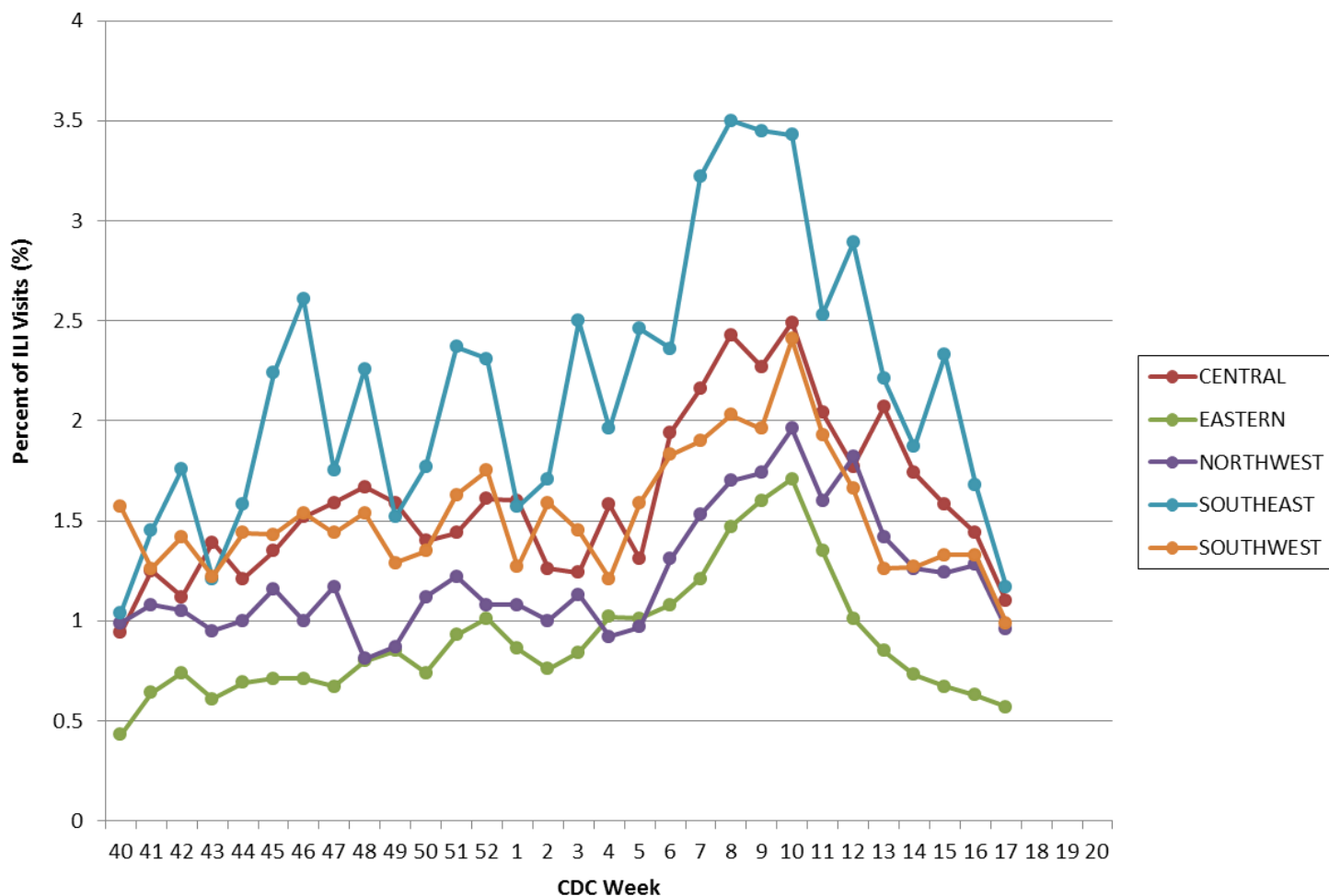†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending April 30, 2016**

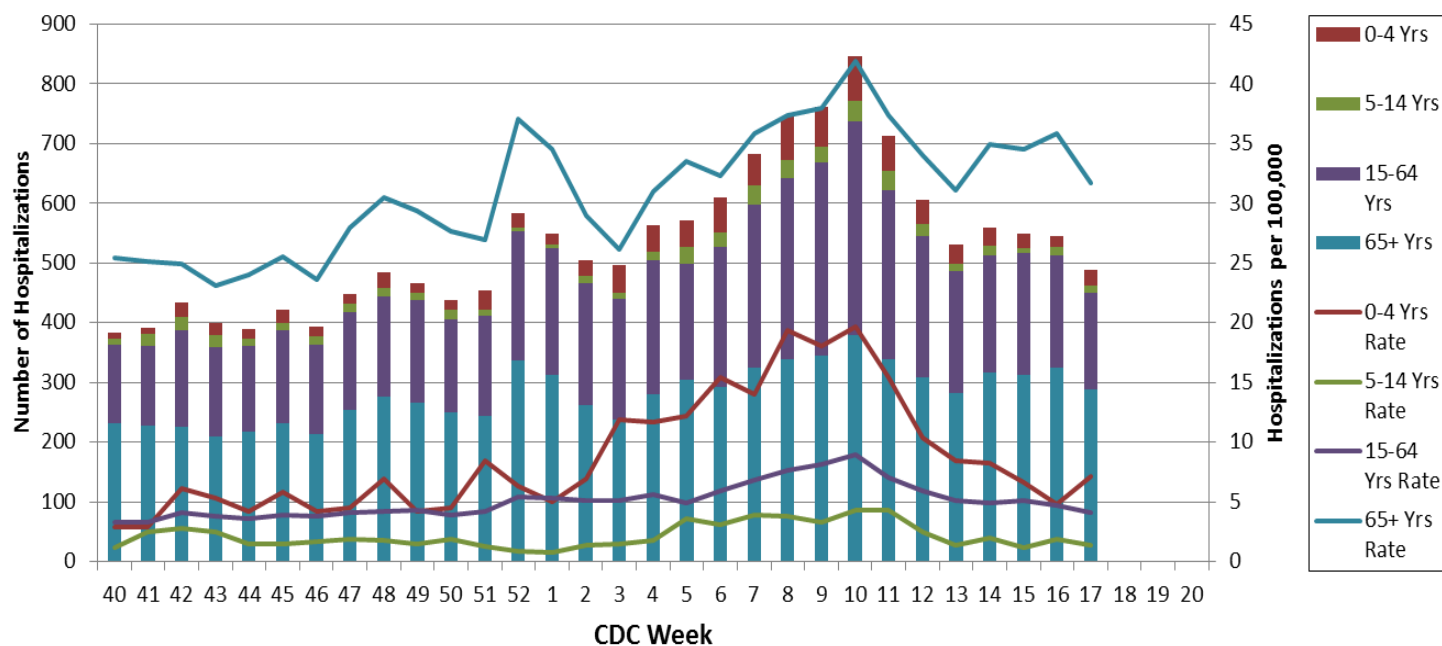| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.62 | 2.17 | 0.91 | 0.64 | 0.25 | 0.96 |
| Central | 3.62 | 1.79 | 0.92 | 0.56 | 0.60 | 1.10 |
| Eastern | 1.02 | 1.10 | 0.59 | 0.42 | 0.15 | 0.57 |
| Southeast | 1.89 | 4.23 | 0.51 | 0.93 | 0.53 | 1.17 |
| Southwest | 3.80 | 2.27 | 0.85 | 0.40 | 0.11 | 0.99 |
| **Statewide** | **1.90** | **1.83** | **0.76** | **0.52** | **0.25** | **0.84** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending April 30, 2016



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending April 30, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=649045b0-4f96-49b5-b1a1-a2ddc1346041**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW) http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance: http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 18: May 1 – May 7, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic[2].

- A season-to-date total of 19,676 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 69% influenza A, 29% influenza B, and 2% untyped. Influenza A accounted for 39% and influenza B accounted for 60% of reported cases during Week 18, with influenza A remaining the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (983 cases per 100,000 population) and children aged 5-14 years (532 cases per 100,000 population). Eight laboratory-confirmed influenza cases (one influenza A (H3), seven influenza B) were reported by the Missouri State Public Health Laboratory (MSPHL) during Week 18.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 13 influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, nine viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. An A/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE during Week 18. The reported percentage of visits for ILI was 1.37% and 0.75% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 17, 61 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 2,015 P&I associated deaths in Missouri[5].

- Seven influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased in the U.S. during Week 17. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of 100ºF [37.8ºC] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* [http://on.mo.gov/1rWIdM3.](http://on.mo.gov/1rWIdM3.) *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 18**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

### Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 18 (May 1 – May 7, 2016)

| Influenza Type | Week 16 | Week 17 | Week 18 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 528 | 253 | 90 | 13,603 |
| Influenza B | 513 | 290 | 138 | 5,611 |
| Influenza Unknown Or Untyped | 27 | 6 | 3 | 462 |
| Total | 1,068 | 549 | 231 | 19,676 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

### Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 18 (May 1 – May 7, 2016)

| Age Group | Week 18 Cases | Week 18 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 54 | 14 | 3,703 | 983 |
| 05-14 | 54 | 7 | 4,174 | 532 |
| 15-64 | 104 | 3 | 10,083 | 254 |
| 65+ | 16 | 2 | 1,713 | 189 |
| Total | 231 | 4 | 19,676 | 326 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 18 (May 1 – May 7, 2016)**
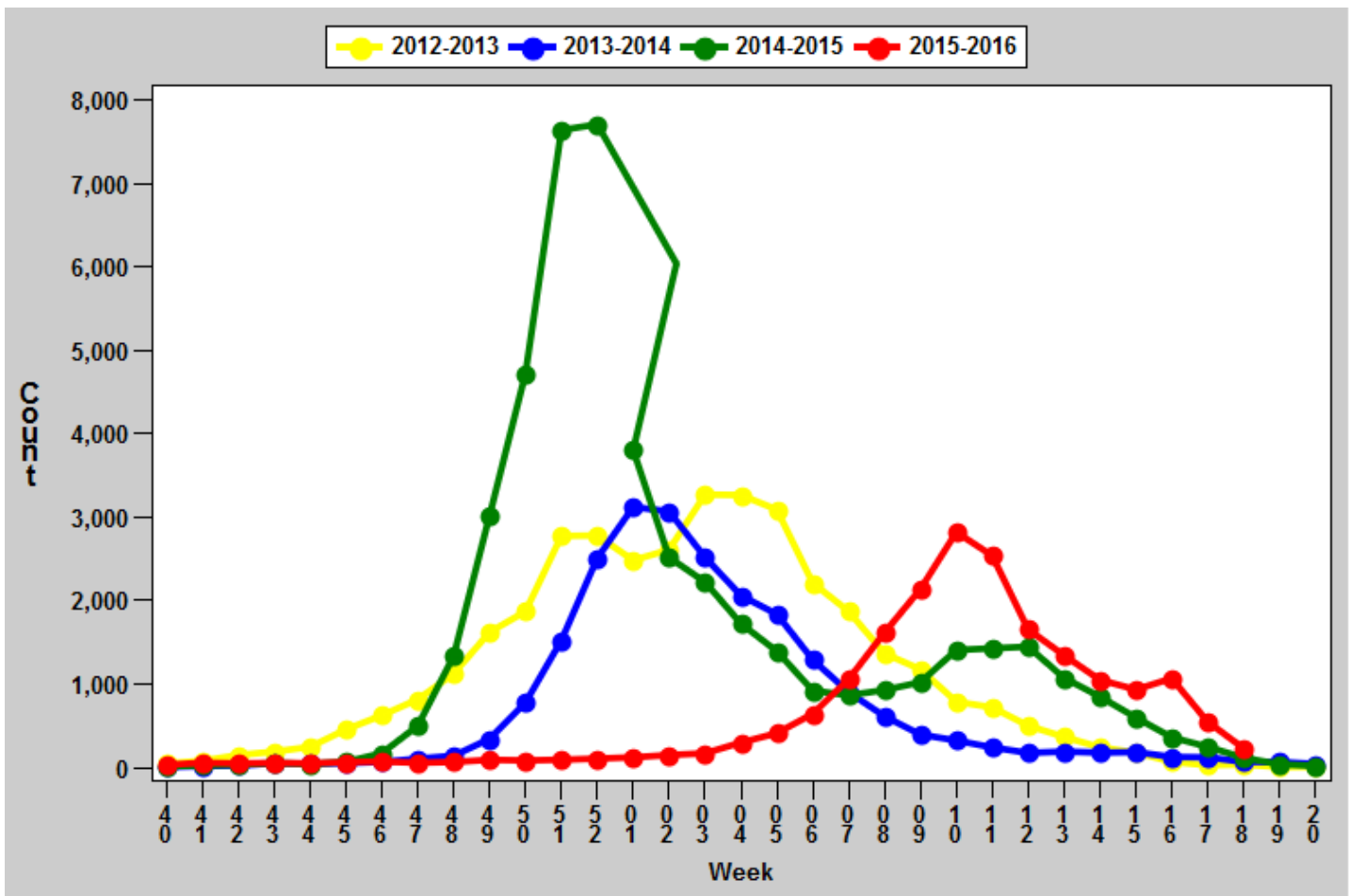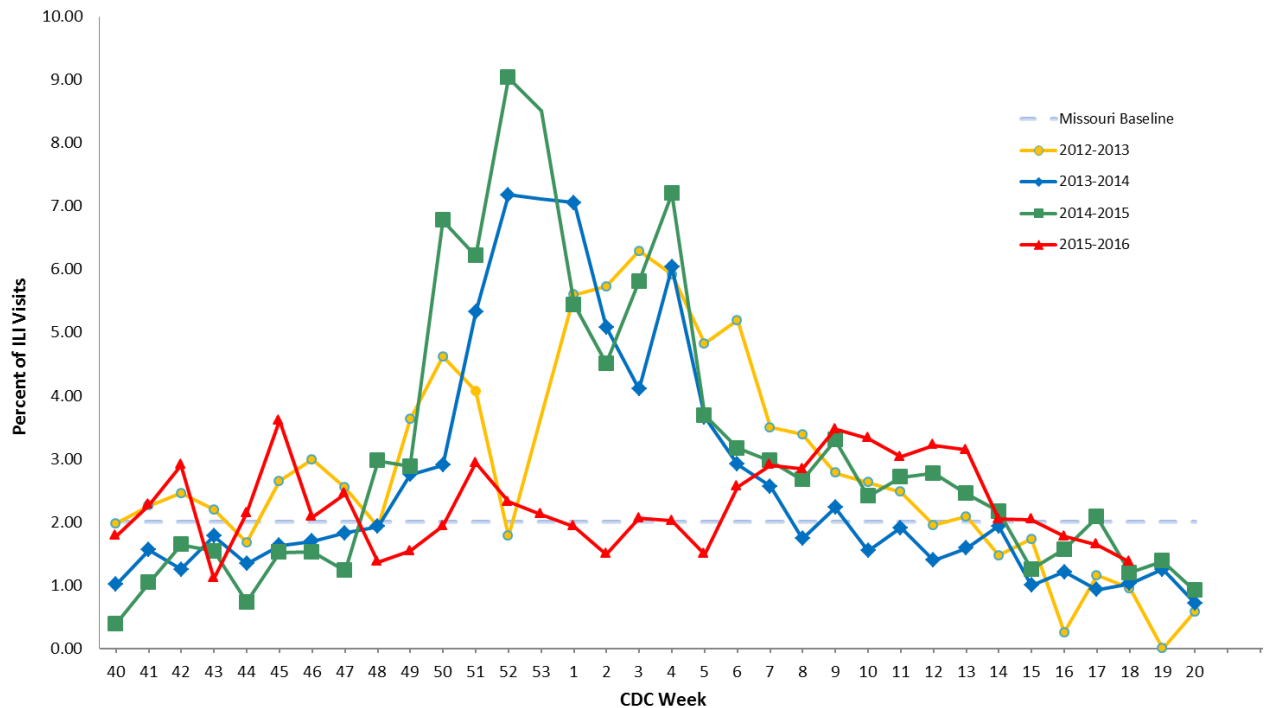
| District | Week 18 Cases | Week 18 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 6 | 1 | 2,169 | 329 |
| EA | 79 | 4 | 6,264 | 278 |
| NW | 81 | 5 | 6,833 | 431 |
| SE | 35 | 7 | 1,560 | 327 |
| SW | 30 | 3 | 2,850 | 266 |
| Total | 231 | 4 | 19,676 | 326 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡] Incidence Rate per 100,000 population

**Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016\***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
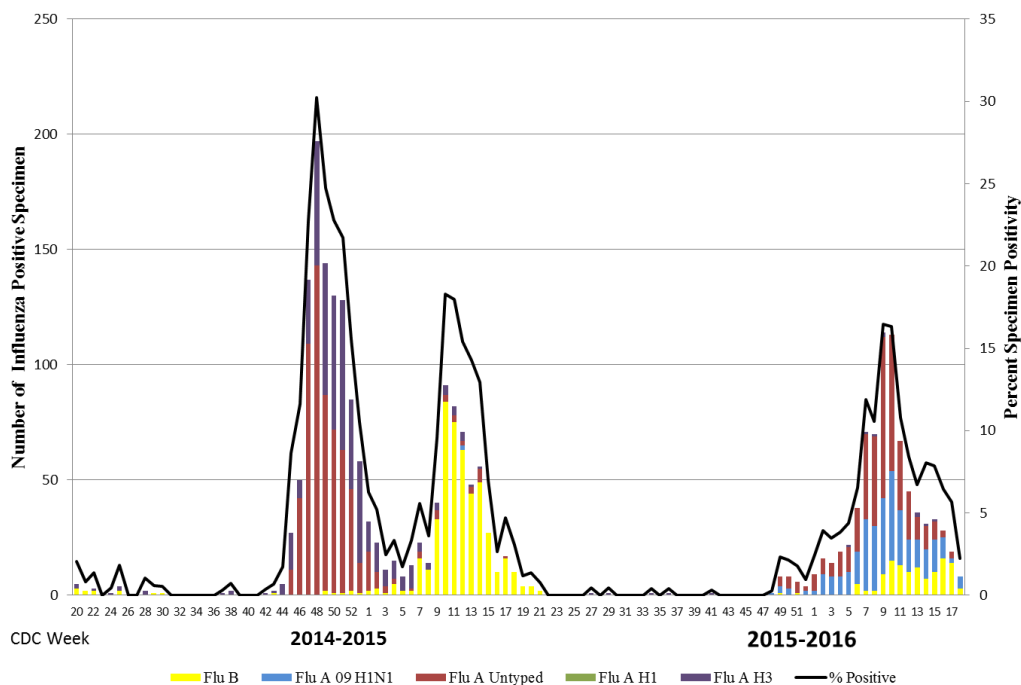*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

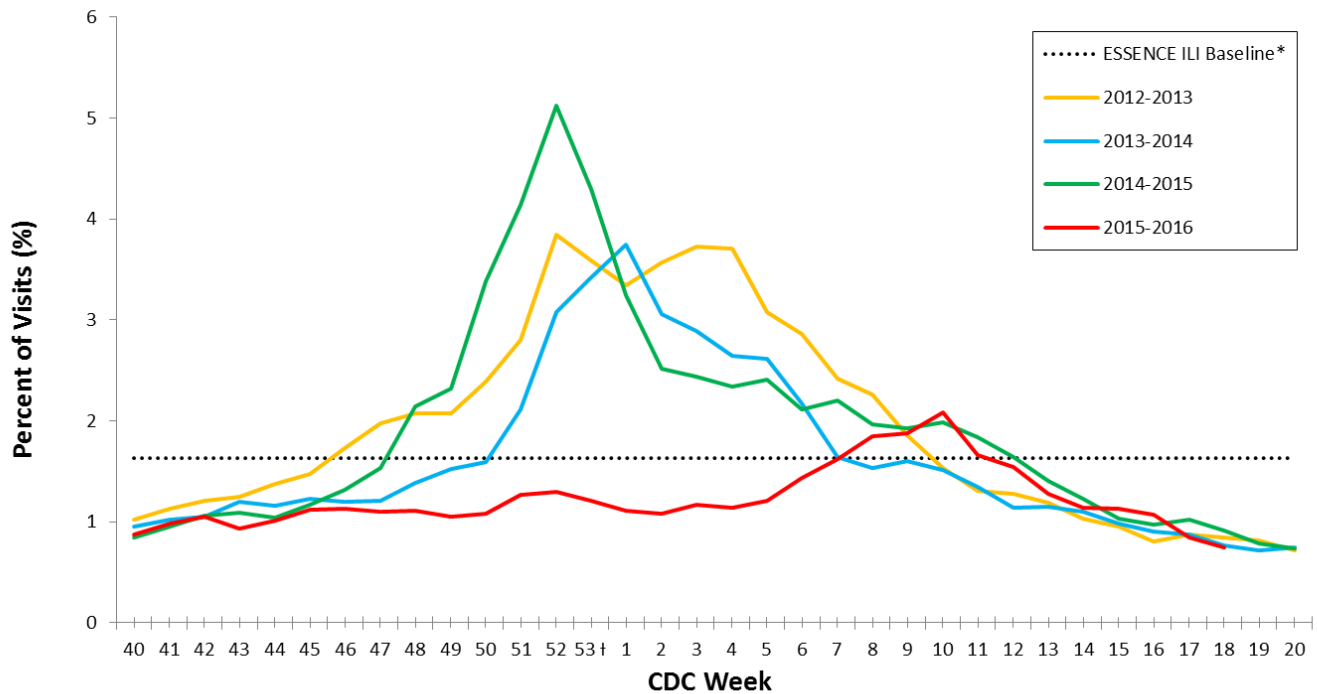# Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
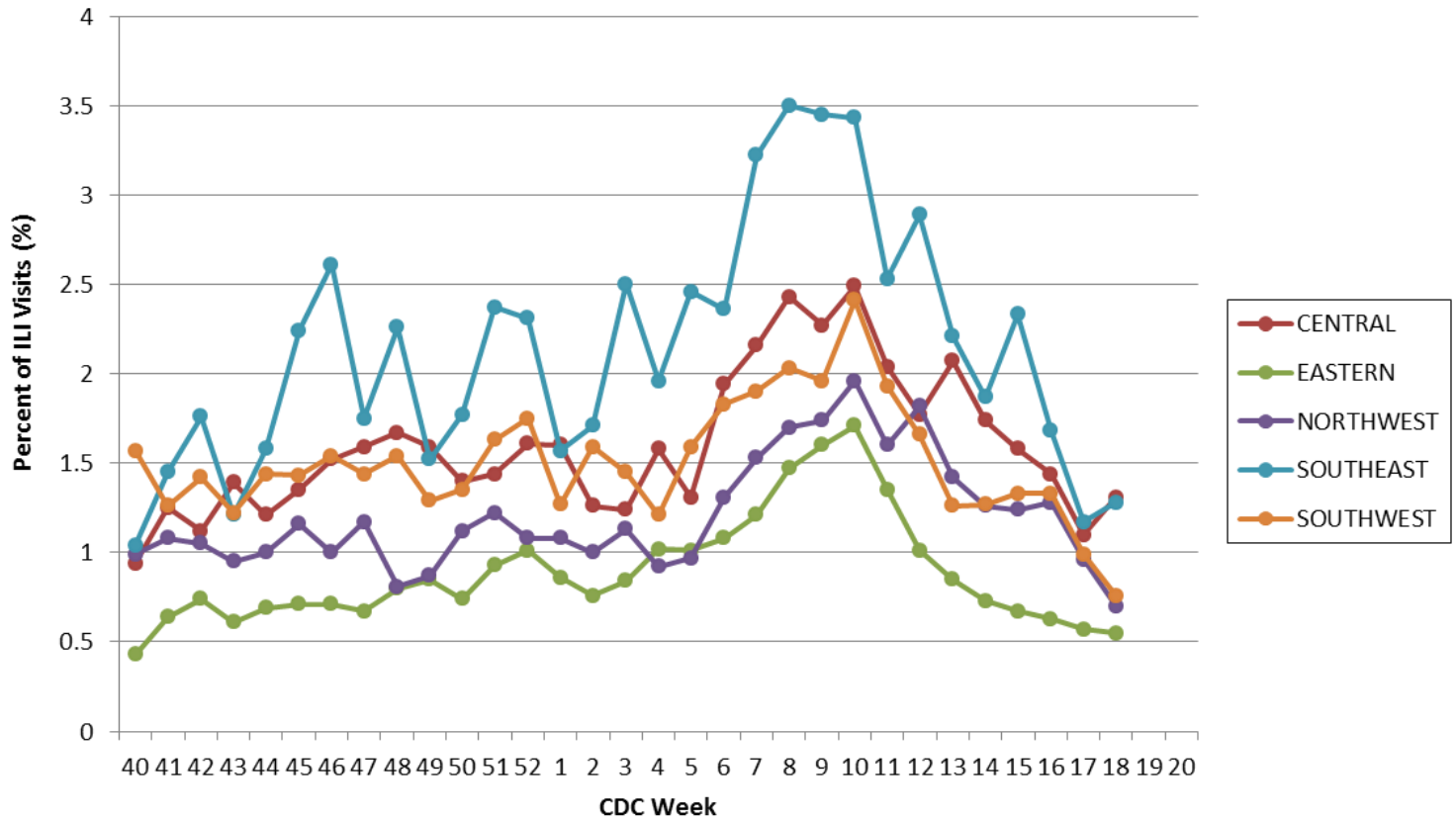†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending May 7, 2016**

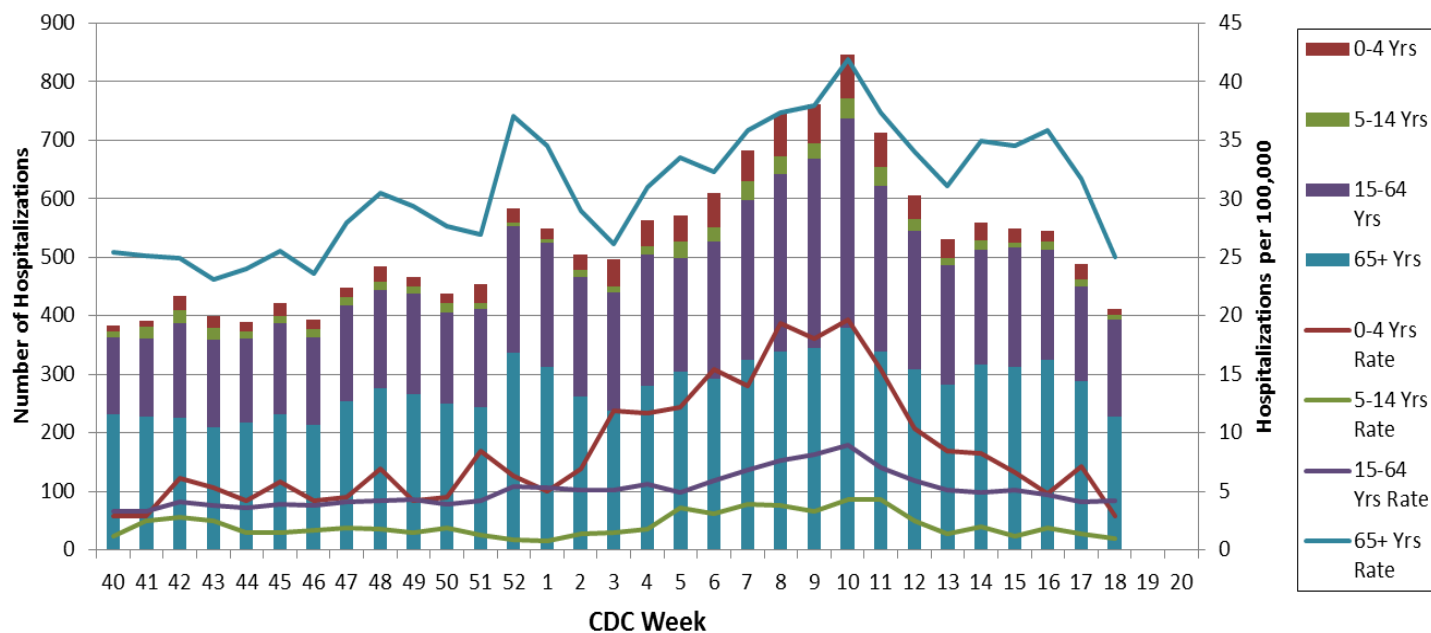| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.20 | 1.42 | 0.64 | 0.54 | 0.29 | 0.70 |
| Central | 4.26 | 2.62 | 0.84 | 0.92 | 0.64 | 1.31 |
| Eastern | 1.05 | 0.86 | 0.55 | 0.50 | 0.24 | 0.55 |
| Southeast | 3.79 | 3.29 | 1.01 | 0.26 | 0.54 | 1.28 |
| Southwest | 3.00 | 2.27 | 0.33 | 0.36 | 0.24 | 0.76 |
| **Statewide** | **1.90** | **1.59** | **0.60** | **0.51** | **0.32** | **0.75** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending May 7, 2016



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending May 7, 2016

## Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=cf96a231-f69e-4a19-a1e4-5bc2a757c7d9**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
# 2015-2016 Influenza Season[1]

## Week 19: May 8 – May 14, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic[2].

- A season-to-date total of 19,859 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 69% influenza A, 29% influenza B, and 2% untyped. Influenza A accounted for 42% and influenza B accounted for 57% of reported cases during Week 19, with influenza A remaining the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (990 cases per 100,000 population) and children aged 5-14 years (538 cases per 100,000 population). There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 19.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 13 influenza isolates from Missouri, to date, this influenza season. Two viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, nine viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. An A/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE during Week 19. The reported percentage of visits for ILI was 0.92% and 0.63% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 18, 61 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 2,076 P&I associated deaths in Missouri[5].

- Seven influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased in the U.S. during Week 18. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of $100^o$F [$37.8^o$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

# Surveillance Data:

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at* http://on.mo.gov/1syKU7E. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 19**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1.  Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 19 (May 8 – May 14, 2016)**

| Influenza Type | Week 17 | Week 18 | Week 19 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 259 | 102 | 42 | 13,677 |
| Influenza B | 295 | 172 | 58 | 5,715 |
| Influenza Unknown Or Untyped | 6 | 5 | 1 | 467 |
| Total | 560 | 279 | 101 | 19,859 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 19 (May 8 – May 14, 2016)**

| Age Group | Week 19 Cases | Week 19 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 21 | 6 | 3,731 | 990 |
| 05-14 | 25 | 3 | 4,218 | 538 |
| 15-64 | 50 | 1 | 10,181 | 256 |
| 65+ | 5 | 1 | 1,726 | 190 |
| Total | 101 | 2 | 19,859 | 329 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

**Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 19 (May 8 – May 14, 2016)**
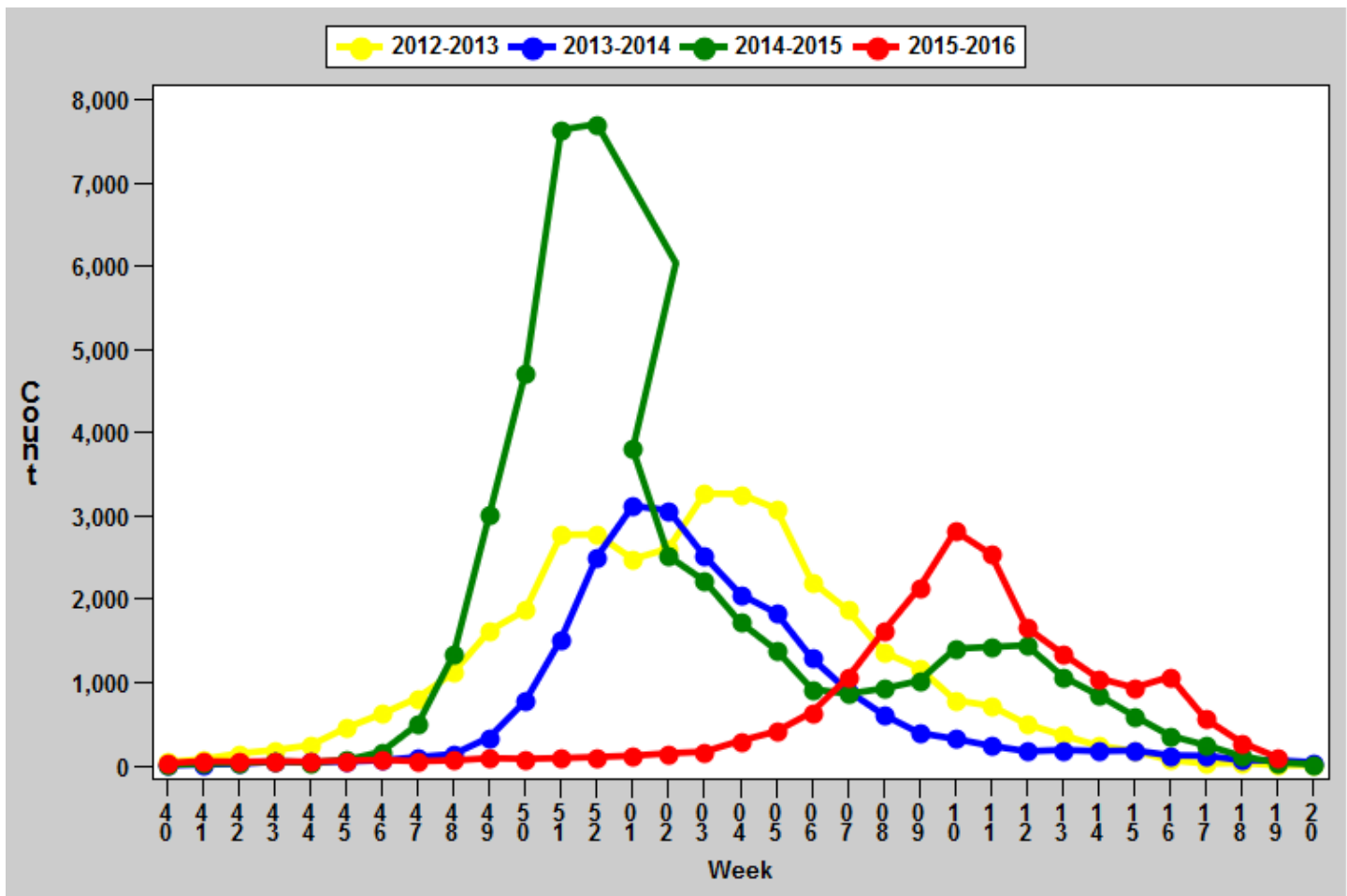
| District | Week 19 Cases | Week 19 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 4 | 1 | 2,187 | 331 |
| EA | 30 | 1 | 6,307 | 280 |
| NW | 39 | 2 | 6,903 | 436 |
| SE | 22 | 5 | 1,584 | 332 |
| SW | 6 | 1 | 2,878 | 268 |
| Total | 101 | 2 | 19,859 | 329 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)

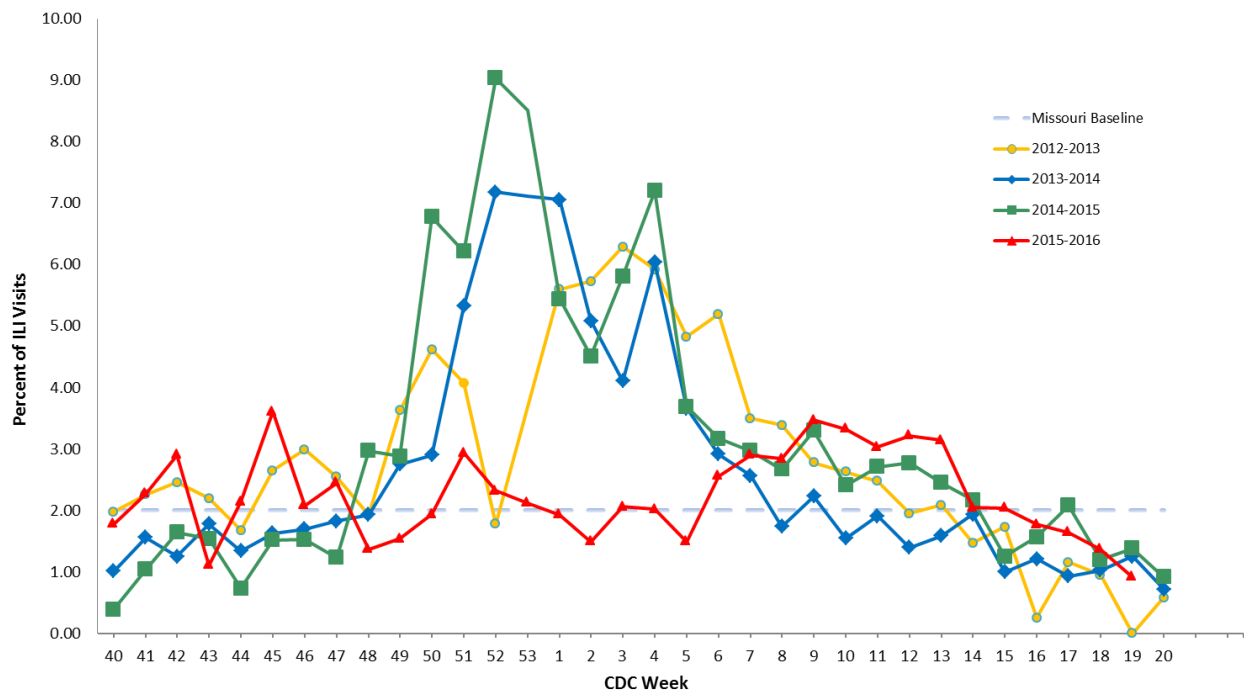[‡] Incidence Rate per 100,000 population

**Graph 1.  Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016***



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
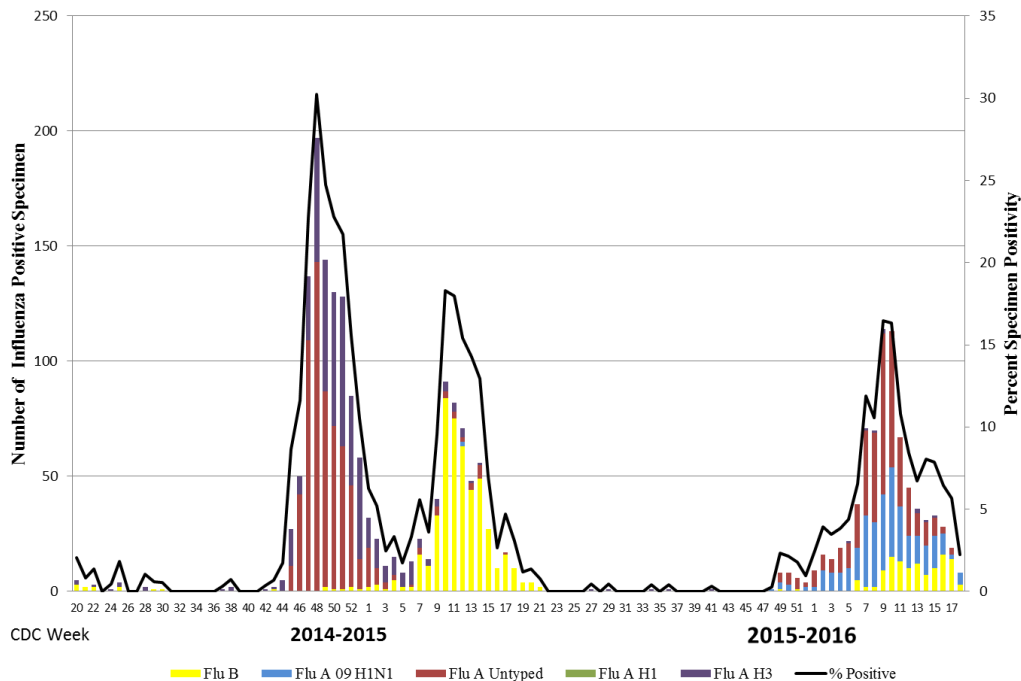
*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

# Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

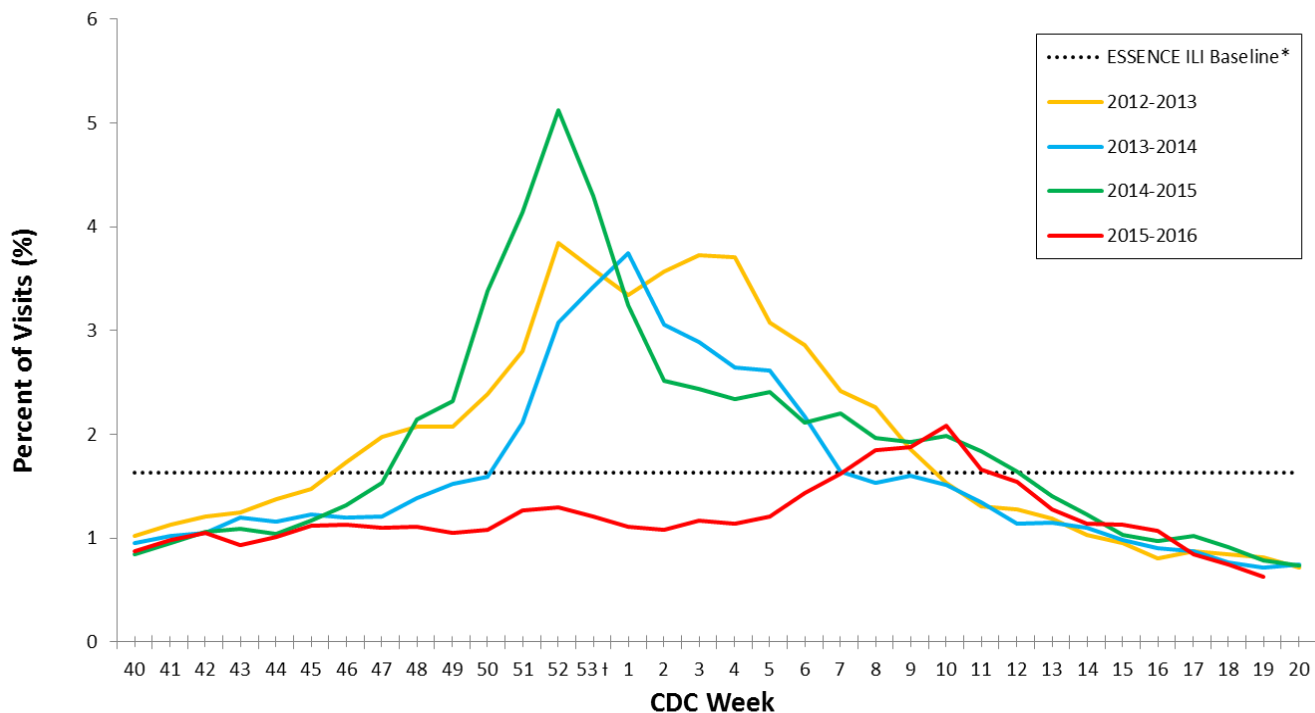# Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests



*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri through CDC Week 18
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
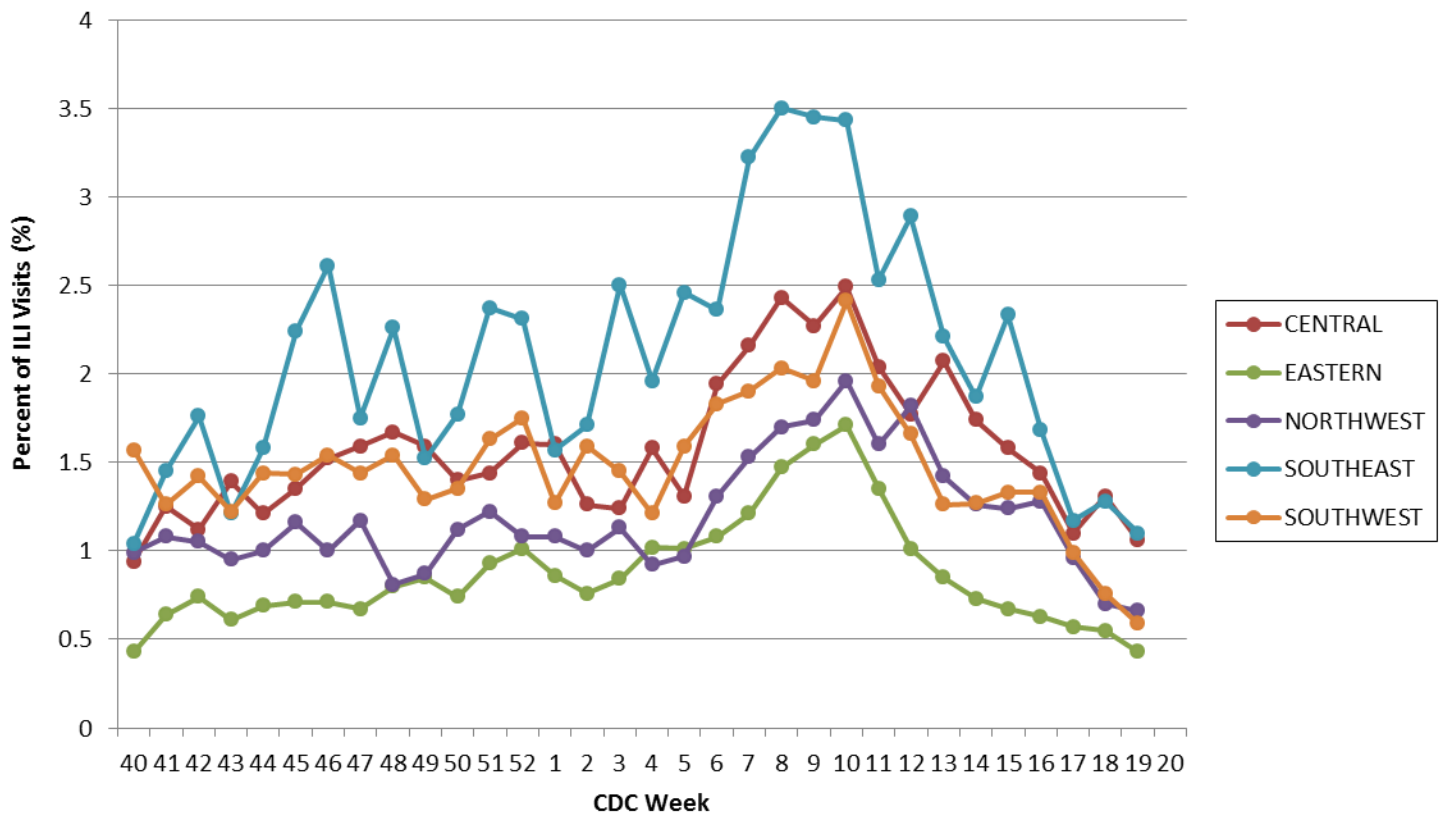
[†]ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending May 14, 2016**

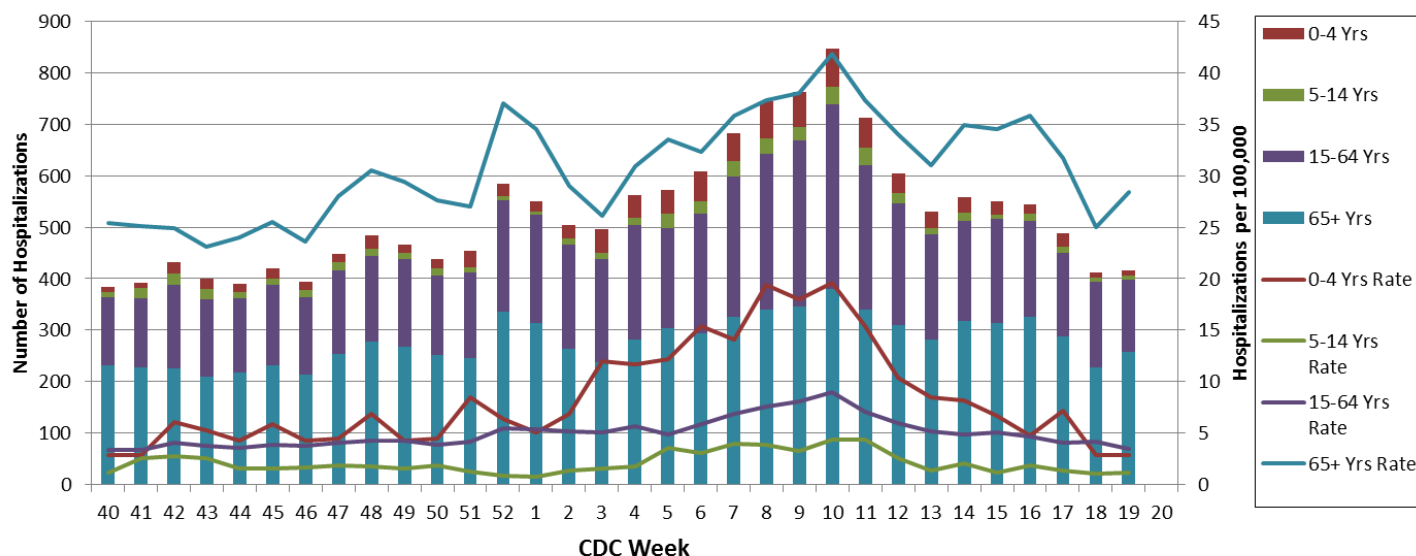| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.27 | 0.93 | 0.66 | 0.40 | 0.49 | 0.66 |
| Central | 5.00 | 1.69 | 0.93 | 0.24 | 0.27 | 1.06 |
| Eastern | 1.23 | 0.83 | 0.20 | 0.20 | 0.21 | 0.43 |
| Southeast | 3.78 | 3.57 | 0.72 | 0.13 | 0.58 | 1.10 |
| Southwest | 2.74 | 1.18 | 0.30 | 0.45 | 0.18 | 0.59 |
| **Statewide** | **1.99** | **1.15** | **0.54** | **0.30** | **0.31** | **0.63** |

Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending May 14, 2016



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending May 14, 2016**



Data Source: Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf). Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=cf96a231-f69e-4a19-a1e4-5bc2a757c7d9**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**

# Missouri Weekly Influenza Surveillance Report
## 2015-2016 Influenza Season[1]

## Week 20: May 15 – May 21, 2016

*All data are preliminary and may change as more reports are received.*

## Summary:

- The estimated influenza activity in Missouri is Sporadic[2].

- A season-to-date total of 20,101 laboratory-positive[3] influenza cases have been reported in Missouri. The influenza type for reported cases season-to-date includes 69% influenza A, 29% influenza B, and 2% untyped. Influenza A accounted for 39% and influenza B accounted for 61% of reported cases during Week 20, with influenza A remaining the predominant virus type reported this season. The highest season-to-date rates of reported laboratory-positive influenza cases are among children aged 0-4 years (1,001 cases per 100,000 population) and children aged 5-14 years (547 cases per 100,000 population). There were no laboratory-confirmed influenza cases reported by the Missouri State Public Health Laboratory (MSPHL) during Week 20.

- The Centers for Disease Control and Prevention (CDC) has antigenically characterized 14 influenza isolates from Missouri, to date, this influenza season. Three viruses were antigenically similar to the A/Switzerland/9715293/2013-like (H3N2) virus, nine viruses were antigenically similar to the A/California/7/2009-like (H1N1)pdm09 virus, and two viruses were antigenically similar to the B/Brisbane/60/2008-like (Victoria lineage) virus. Both an A/Switzerland/9715293/2013-like virus and an A/California/7/2009-like virus are included in the 2015-2016 Northern Hemisphere trivalent vaccine formulation. A B/Brisbane/60/2008-like virus is included in the 2015-2016 Northern Hemisphere quadrivalent vaccine formulation.

- Influenza-like illness activity was below baseline for both the Missouri Outpatient ILI Surveillance Network (ILINet) and the hospital emergency room visit chief complaint data reported through ESSENCE during Week 20. The reported percentage of visits for ILI was 0.94% and 0.67% through ILINet and ESSENCE respectively[4].

- No influenza-associated pediatric deaths have been reported in Missouri, to date, this influenza season. During Week 19, 57 deaths were reported involving Pneumonia and Influenza (P&I) reported to the Bureau of Vital Records, resulting in a season-to-date total of 2,133 P&I associated deaths in Missouri[5].

- Seven influenza or ILI-associated outbreaks have been reported in Missouri, to date, this influenza season. No influenza or ILI-associated school closures have been reported in Missouri, to date, this influenza season.

- Influenza activity decreased in the U.S. during Week 19. National influenza surveillance information is prepared by the CDC and is included in the weekly FLUVIEW report, which is available online at http://www.cdc.gov/flu/weekly/fluactivitysurv.htm.

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[1]The 2015-2016 influenza season in Missouri began CDC Week 40 (week ending October 10, 2015) through CDC Week 20 (week ending May 21, 2016).

[2]Sporadic is defined as: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

[3]Laboratory-positive influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

[4]Influenza-like illness (ILI) is defined by ILINet as fever (temperature of $100^{o}$F [$37.8^{o}$C] or greater) and a cough and/or a sore throat without a known cause other than influenza. Influenza-like illness (ILI) is defined by ESSENCE as Emergency Department chief complaints that contain keywords such as "flu", "flulike", "influenza" or "fever" plus "cough" or "fever" plus "sore throat".

[5]The P&I data are available one week later. The P&I data for the CDC Week provided is the most current data available.

## Interactive Maps

*The county specific influenza data are provided though interactive maps available at*
http://on.mo.gov/1YZA6JI. *Click on the county to view the influenza data specific to that county.*

- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, CDC Week 20**
- **Reported Laboratory -positive Influenza Cases by Influenza Type by County, Season-to-Date**
- **Percentage of Laboratory-positive Influenza Cases Reported to be Influenza Type A**

## Data Tables and Graphs

**Table 1. Number of Laboratory-positive[†] Influenza Cases by Influenza Type, Missouri, CDC Week 20 (May 15 – May 21, 2016)**

| Influenza Type | Week 18 | Week 19 | Week 20 | 2015-2016* Season-to-Date |
|---|---|---|---|---|
| Influenza A | 112 | 46 | 27 | 13,789 |
| Influenza B | 186 | 83 | 43 | 5,842 |
| Influenza Unknown Or Untyped | 7 | 1 | 0 | 470 |
| Total | 305 | 130 | 70 | 20,101 |

[†]Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)   Data Source: Missouri Health Information Surveillance System (WebSurv).

**Table 2. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Age Group, Missouri, CDC Week 20 (May 15 – May 21, 2016)**

| Age Group | Week 20 Cases | Week 20 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| 00-04 | 11 | 3 | 3,771 | 1,001 |
| 05-14 | 27 | 3 | 4,291 | 547 |
| 15-64 | 30 | 1 | 10,297 | 259 |
| 65+ | 2 | 0 | 1,739 | 192 |
| Total | 70 | 1 | 20,101 | 333 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)
[‡]Incidence Rate per 100,000 population

## Table 3. Number of Laboratory-positive[†] Influenza Cases and Case Rates by Region, Missouri, CDC Week 20 (May 15 – May 21, 2016)
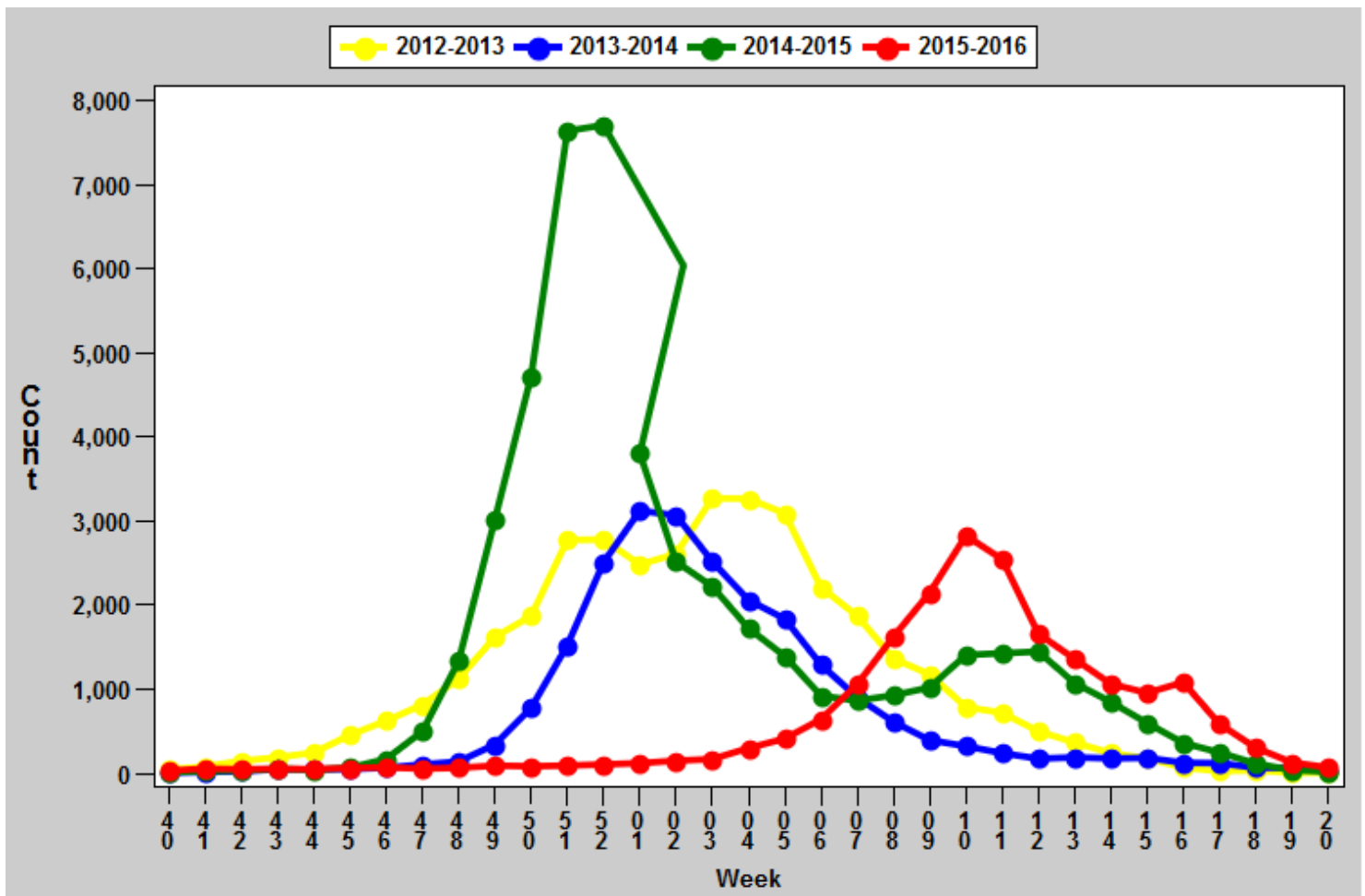
| District | Week 20 Cases | Week 20 Rate[‡] | 2015-2016* Season-to-Date | 2015-2016* Season-to-Date Rate[‡] |
|---|---|---|---|---|
| CE | 4 | 1 | 2,202 | 334 |
| EA | 16 | 1 | 6,335 | 282 |
| NW | 35 | 2 | 7,056 | 445 |
| SE | 12 | 3 | 1,604 | 336 |
| SW | 3 | 0 | 2,904 | 271 |
| Total | 70 | 1 | 20,101 | 333 |

[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.

*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40) Data Source: Missouri Health Information Surveillance System (WebSurv)

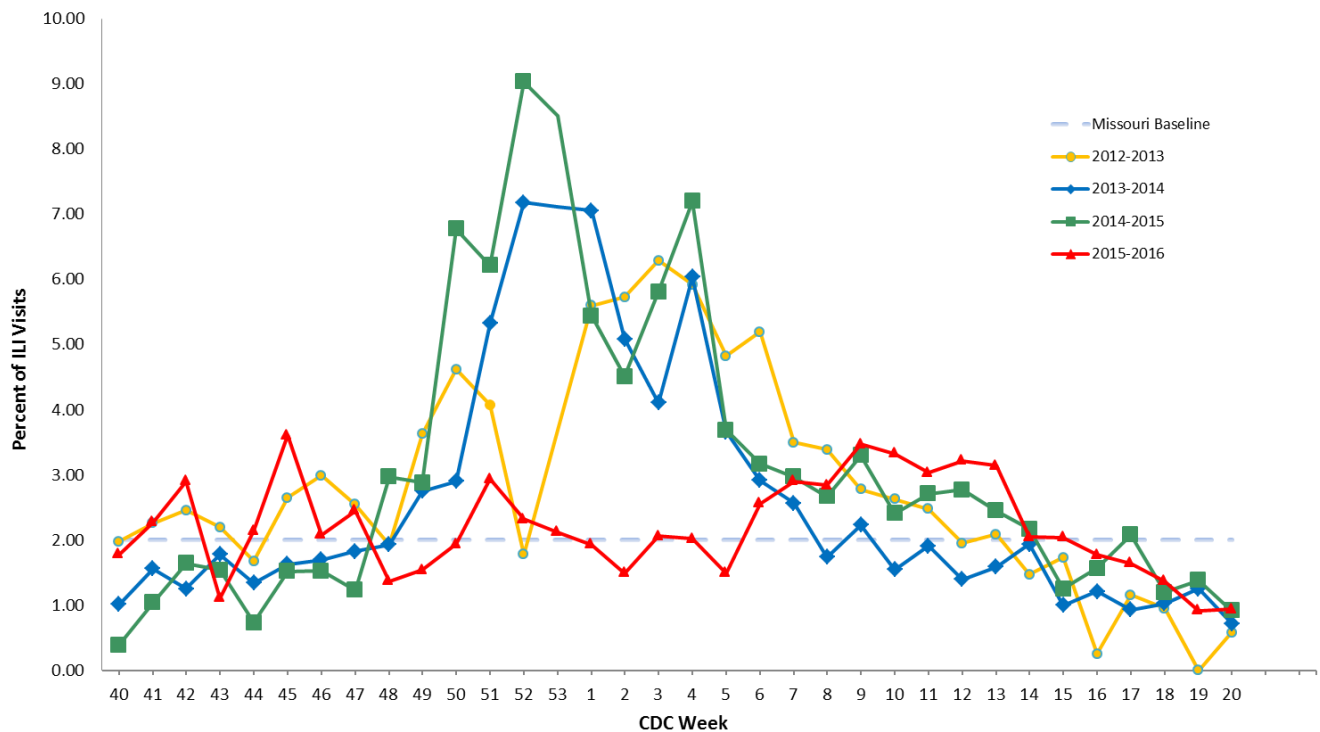[‡] Incidence Rate per 100,000 population

## Graph 1. Number of Laboratory-positive[†] Influenza Cases by CDC Week, Missouri, 2012-2016*



[†] Laboratory-positive Influenza includes the following test methods: rapid influenza diagnostic tests (antigen), reverse transcriptase polymerase chain reaction (RT-PCR) and other molecular assays, immunofluorescence antibody staining (Direct (DFA) or Indirect (IFA)), or viral culture.
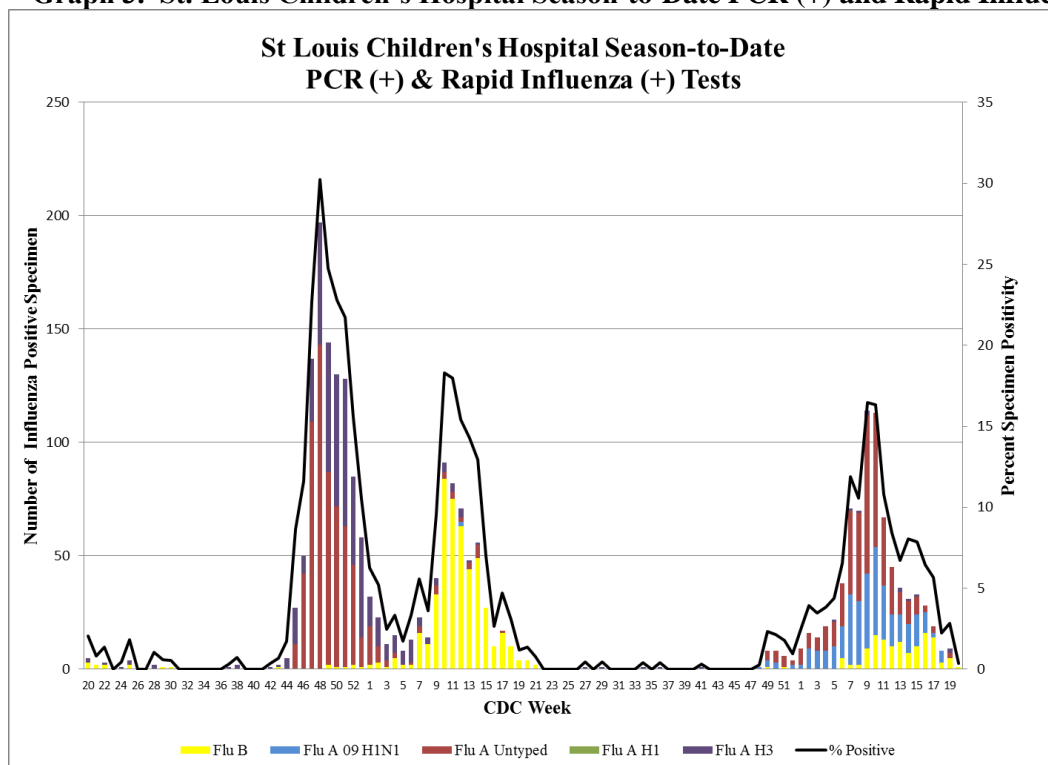
*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52. Data Source: Missouri Health Information Surveillance System (WebSurv).

## Graph 2. Percentage of Visits for Influenza-like-Illness (ILI), Missouri Outpatient ILI Surveillance Network (ILINet) 2012-2016*



*2015-2016 Season-to-Date through the week ending May 21, 2016 (Week 20). 2014-2015 Season had 53 weeks rather than the usual 52.

## Graph 3. St. Louis Children's Hospital Season-to-Date PCR (+) and Rapid Influenza Tests
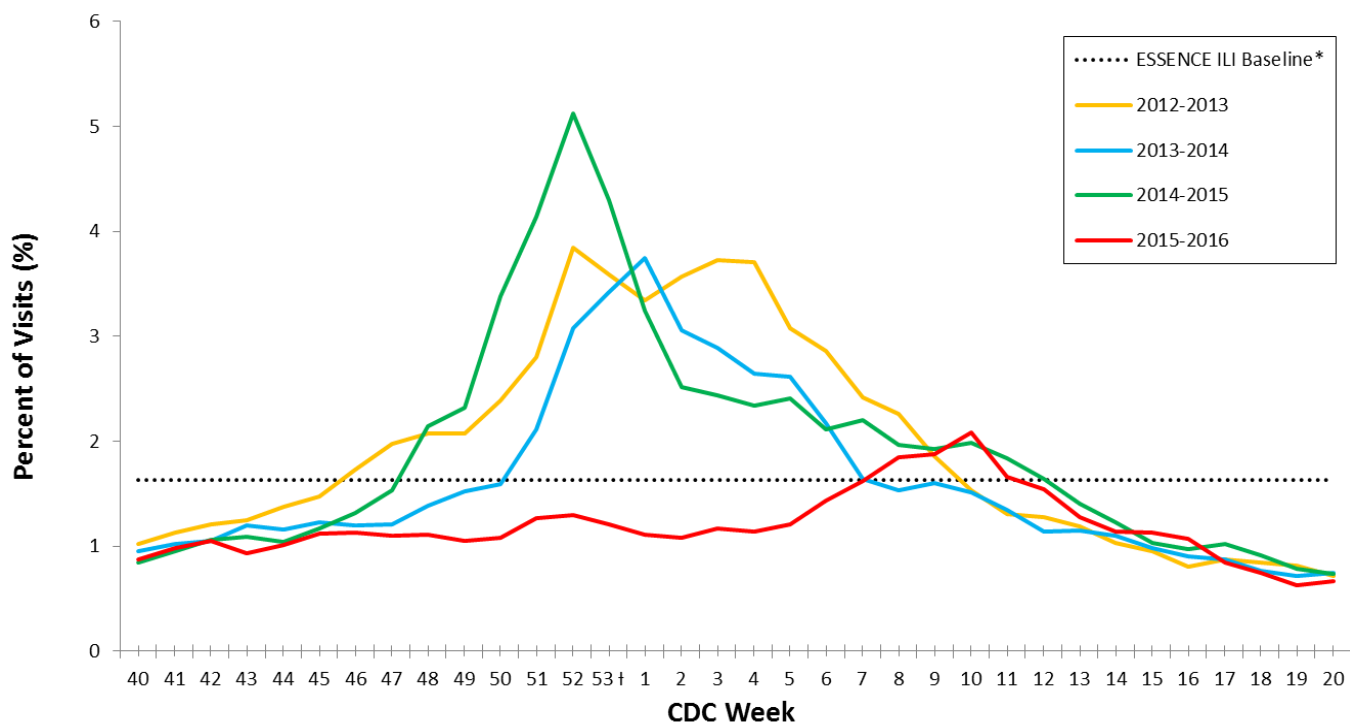


*Data Source: St. Louis Children's Hospitals
*This data is based on testing in all age groups in St Louis Metro and SE Missouri
*Influenza Season begins Week Ending October 10, 2015 (CDC Week 40)

**Graph 4. Weekly Percentage of Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, for 2012-2016 Influenza Seasons**



Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

\* The ESSENCE ILI Baseline is the mean percent of ILI visits for each week during the previous three years (2012-14) when percentage of ILI visits were less than 2% of total visits, plus two standard deviations.
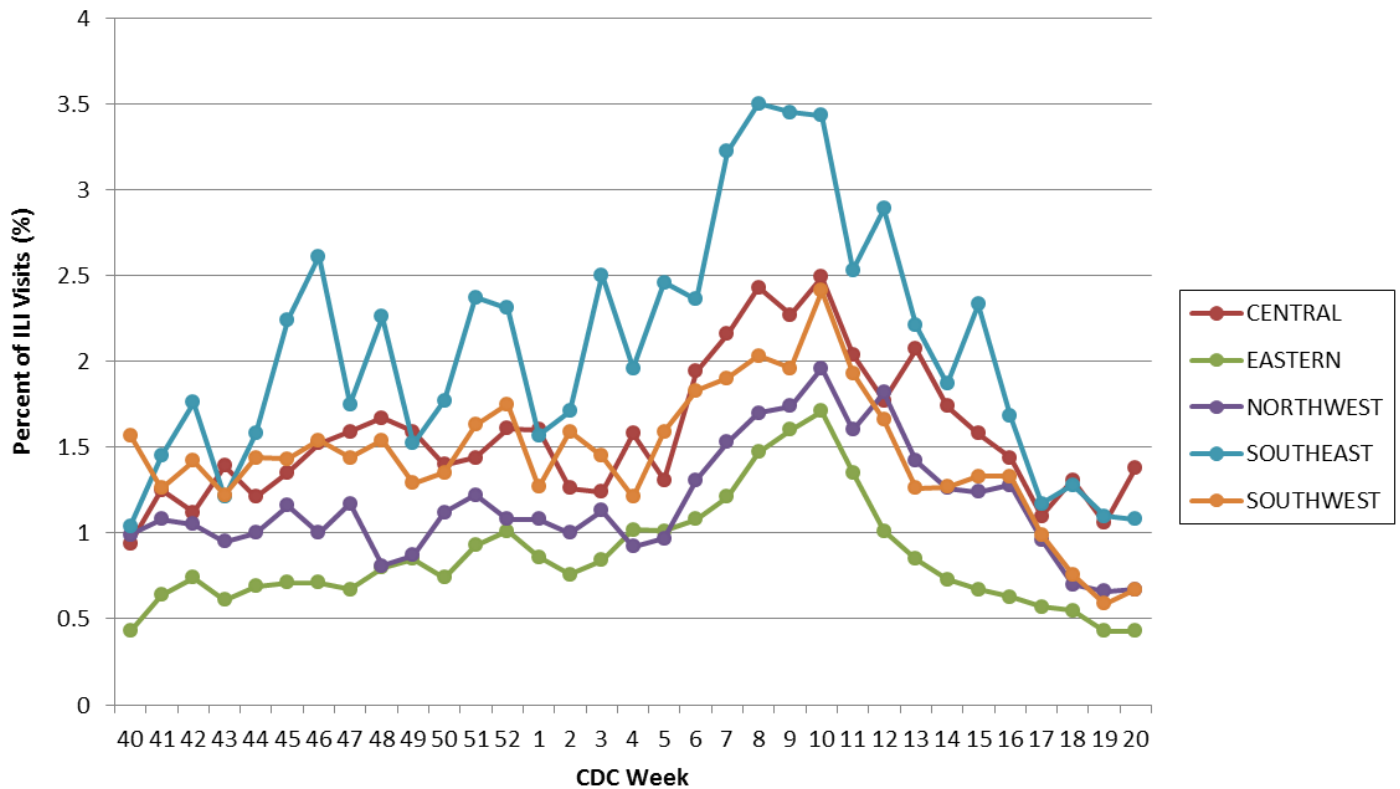
†ILI % for week 53 was estimated for previous seasons by averaging values for weeks 52 and 1 in order to compare to the ILI % for week 53 of the 2014-15 influenza season.

**Table 4. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District and Statewide for Week Ending May 21, 2016**

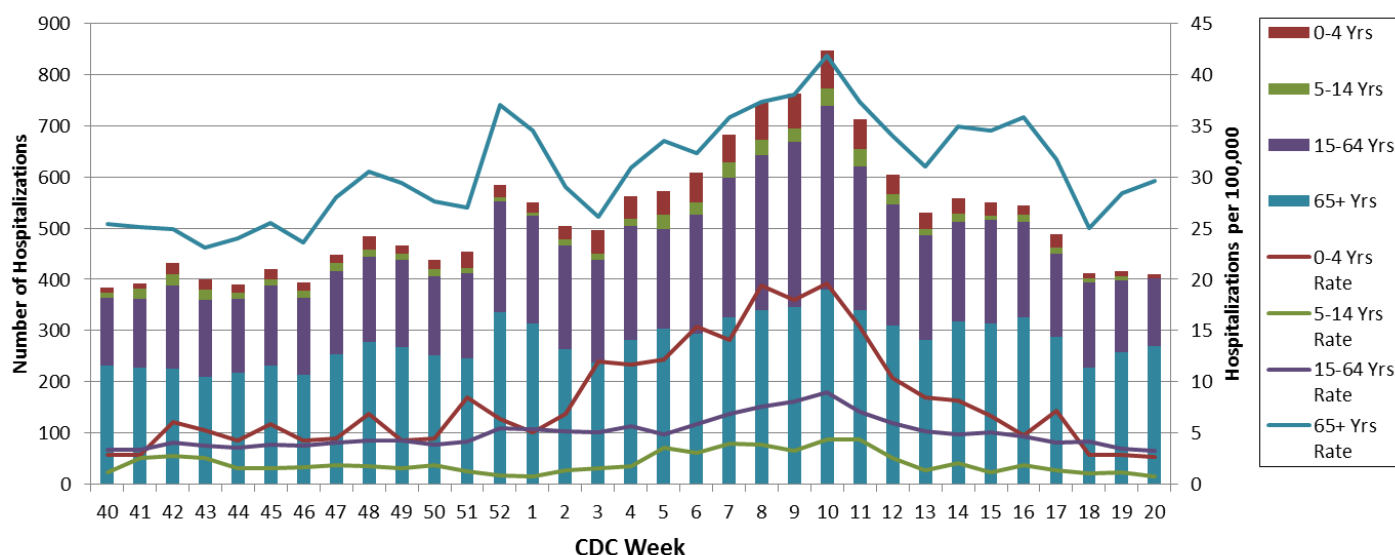| District | Age 0-4 (%) | Age 5-17 (%) | Age 18-44 (%) | Age 45-64 (%) | Age 65+ (%) | Total Percentage |
|---|---|---|---|---|---|---|
| Northwest | 1.15 | 1.25 | 0.55 | 0.57 | 0.43 | 0.67 |
| Central | 5.52 | 2.13 | 0.99 | 0.85 | 0.45 | 1.38 |
| Eastern | 0.81 | 0.74 | 0.47 | 0.25 | 0.24 | 0.43 |
| Southeast | 3.04 | 3.77 | 0.75 | 0.48 | 0.38 | 1.08 |
| Southwest | 2.82 | 1.85 | 0.41 | 0.20 | 0.25 | 0.67 |
| **Statewide** | **1.86** | **1.39** | **0.56** | **0.40** | **0.32** | **0.67** |

Data Source:  Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

# Graph 5. Percentage of Influenza-like Illness (ILI) Visits per Total Visits to Hospital Emergency Rooms from ESSENCE by District for Week Ending May 21, 2016



Data Source: Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE. Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).

**Graph 6. Patients Hospitalized with Influenza and/or Pneumonia Syndromes from Participating Missouri Hospitals, by Age Group, Week Ending May 21, 2016**



Data Source:  Hospitalization data from Missouri Department of Health and Senior Services (DHSS), Bureau of Reportable Disease Informatics, ESSENCE HL7 messaging portal.  Includes data from 120 reporting facilities in Missouri ESSENCE (http://health.mo.gov/data/essence/pdf/missourimap.pdf).
Population data from DHSS Population MICA 2014 (http://health.mo.gov/data/mica/mica/population.php).

# Additional Influenza Data Sources:

**St Louis Children's Hospital Laboratory: http://slchlabtestguide.bjc.org/Default.aspx?url=cf96a231-f69e-4a19-a1e4-5bc2a757c7d9**

**Centers for Disease Control and Prevention: National Influenza Surveillance (FLUVIEW)**
**http://www.cdc.gov/flu/weekly/fluactivitysurv.htm**

**World Health Organization: International Influenza Surveillance:**
**http://www.who.int/influenza/surveillance_monitoring/en/**